Torque Specifications

Description	Nm	lb-in
Battery ground cable bolt	10	89
Rear lamp nuts	6	53

Exterior Lighting

The exterior lighting system consists of the following components:

- headlamps (13008)
- parking lamps
- rear lamps (13404)
- high mounted stoplamp
- license lamps
- front turn lamps
- reversing lamps
- fog lamps (if equipped)
- headlamp switch (11654)
- fog lamp switch (if equipped)
- brake pedal position (BPP) switch (13480)
- multifunction switch (13K359)
- digital transmission range (DTR) sensor (A/T)
- reversing lamp switch (M/T)
- electronic flasher
- fog lamp relays (if equipped)

Headlamps

Refer to Wiring Diagrams Cell 85 , Headlamps for schematic and connector information.

Special Tool(s)

ST1137-A	73III Automotive Meter or equivalent 105-R0057

Inspection and Verification

1. Verify the customer concern by operating the headlamps.
2. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Damaged headlamp switch (11654) ● Damaged multifunction switch (13K359)	● Battery junction box (BJB) fuse 2 (30A) ● Central junction box (CJB) fuse(s): ■ 38 (20A) ■ 4 (7.5A) (RH) ■ 10 (7.5A) (LH) ● Damaged wiring harness ● Loose or corroded connections ● Headlamp bulb

3. If the concern is not visually evident, determine the symptom and proceed to Symptom Chart.

Symptom Chart

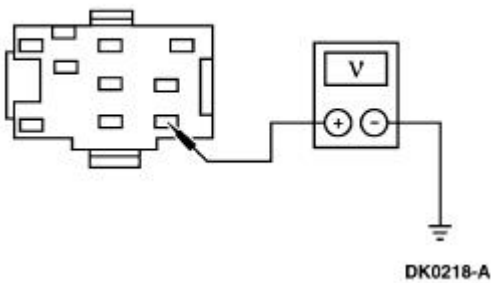
Symptom Chart

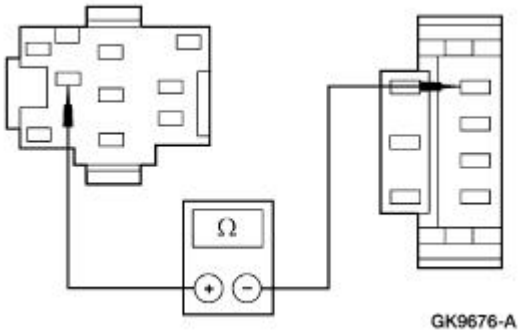
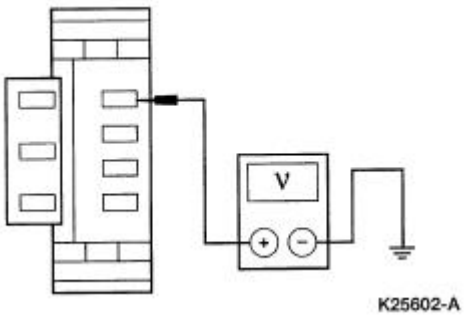
Condition	Possible Sources	Action
● Both headlamps are inoperative	● Battery junction box (BJB) fuse 2 (30A). ● Headlamp switch. ● Circuitry. ● Multifunction switch.	● Go To Pinpoint Test A .
● The low beams are inoperative	● Circuitry. ● Multifunction switch.	● Go To Pinpoint Test B .

• The high beams are inoperative	• Central junction box (CJB) fuse 38 (20A). • Circuitry. • Multifunction switch.	• Go To Pinpoint Test C .
• One low beam headlamp is inoperative	• Central junction box (CJB) fuse (s): ■ 10 (7.5A) (LH). ■ 4 (7.5A) (RH). • Headlamp bulb. • Circuitry.	• Go To Pinpoint Test D .
• One high beam headlamp is inoperative	• Headlamp bulb. • Circuitry.	• Go To Pinpoint Test E .
• The headlamps are on continuously	• Headlamp switch. • Circuitry. • Multifunction switch.	• Go To Pinpoint Test F .
• The flash-to-pass feature is inoperative	• Circuitry. • Multifunction switch.	• CHECK Circuit 196 (DB/OG) for an open. REPAIR if necessary. IF OK, INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation.

Pinpoint Tests

PINPOINT TEST A: BOTH HEADLAMPS ARE INOPERATIVE

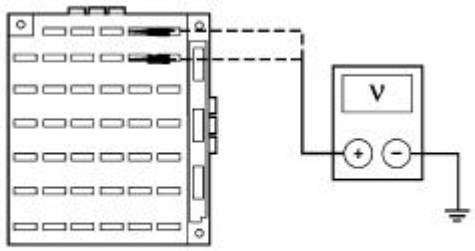
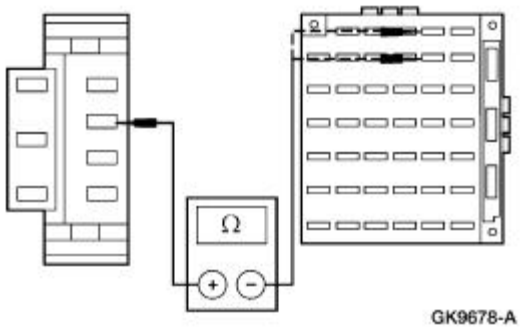
Test Step	Result / Action to Take
A1 CHECK THE VOLTAGE TO THE HEADLAMP SWITCH	
• Disconnect: Headlamp Switch C205. • Measure the voltage between headlamp switch C205 Pin B1, Circuit 196 (DB/OG), harness side and ground.  • **Is the voltage greater than 10 volts?**	**Yes** GO to A2 . **No** REPAIR the circuit. TEST the system for normal operation.
A2 CHECK CIRCUIT 15 (RD/YE) FOR OPEN	
• Disconnect: Multifunction Switch C202a.	**Yes**

• Measure the resistance between headlamp switch C205 Pin H, Circuit 15 (RD/YE), harness side and multifunction switch C202a Pin 15, Circuit 15 (RD/YE), harness side.  • **Is the resistance less than 5 ohms?**	RECONNECT headlamp switch C205. GO to A3 . **No** REPAIR the circuit. TEST the system for normal operation.
A3 CHECK THE VOLTAGE TO THE MULTIFUNCTION SWITCH	
• Place the headlamp switch in the ON position. • Measure the voltage between multifunction switch C202a Pin 15, Circuit 15 (RD/YE), harness side and ground.  • **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation. **No** INSTALL a new headlamp switch; REFER to Lamp Switch—Headlamp in this section. TEST the system for normal operation.

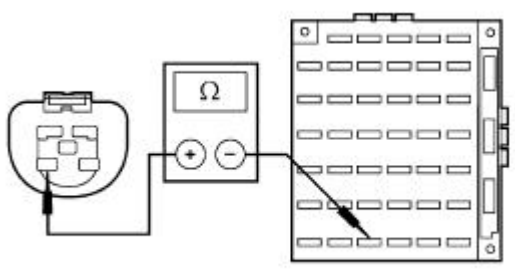
PINPOINT TEST B: THE LOW BEAMS ARE INOPERATIVE

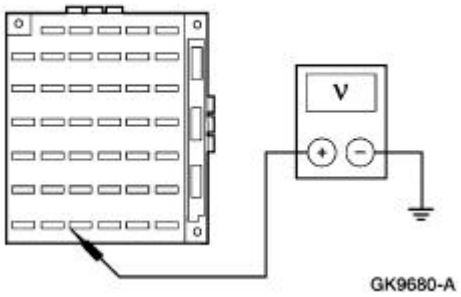
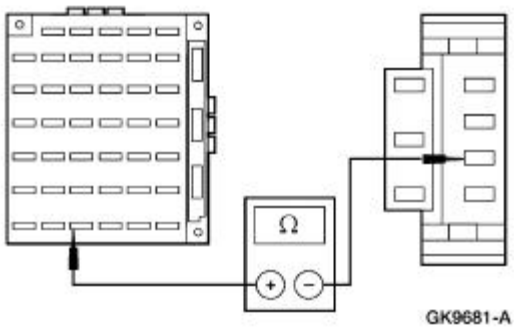
Test Step	Result / Action to Take
B1 CHECK THE VOLTAGE TO CJB FUSE 4 (7.5A) AND CJB FUSE 10 (7.5A)	

• Key in OFF position.
• Place the multifunction switch in the low beam position.
• Remove Fuse 4 (7.5A) and Fuse 10 (7.5A) from the CJB.
• Place the headlamp switch in the ON position.
• Measure the voltage between the following CJB fuse terminals and ground:
  ■ Fuse 4 connector.
  ■ Fuse 10 connector.
	Yes
	Go To Pinpoint Test D .
	
	No
	GO to B2 .

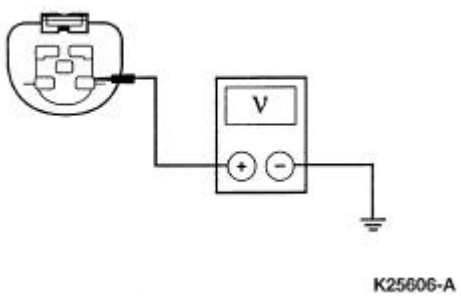
 GK9677-A ● **Are the voltages greater than 10 volts?**	
B2 CHECK CIRCUIT 13 (RD/BK) FOR OPEN	
● Disconnect: Multifunction Switch C202a. ● Measure the resistance between multifunction switch C202a Pin 13, Circuit 13 (RD/BK), harness side and CJB Fuse 4 and Fuse 10.  GK9678-A ● **Are the resistances less than 5 ohms?**	**Yes** INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST C: THE HIGH BEAMS ARE INOPERATIVE

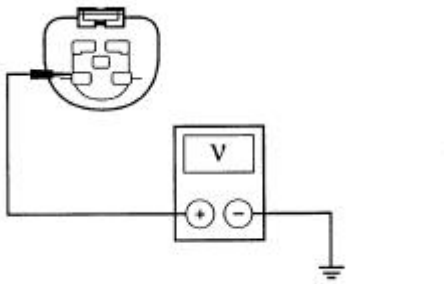
Test Step	Result / Action to Take
C1 CHECK THE CIRCUIT 12 (LG/BK)	
● Disconnect: LH Headlamp C1021. ● Measure the resistance between LH headlamp C1021 Pin 2, Circuit 12 (LG/BK), harness side and CJB Fuse 38 (20A).  GK9971-A ● **Is the resistance less than 5 ohms?**	**Yes** RECONNECT the LH headlamp (13008). GO to C2 . **No** REPAIR the circuit. TEST the system for normal operation.
C2 CHECK THE VOLTAGE TO CJB FUSE 38 (20A)	
● Place the headlamp switch in the ON position. ● Place the multifunction switch in the high beam position. ● Measure the voltage between CJB Fuse 38 (20A) and ground.	**Yes** Go To Pinpoint Test E . **No**

 ● **Is the voltage greater than 10 volts?**	GO to C3 .
C3 CHECK CIRCUIT 632 (GY/OG) FOR OPEN ● Disconnect: Multifunction Switch C202a. ● Measure the resistance between the CJB Fuse 38 (20A), and multifunction switch C202a Pin 12, Circuit 632 (GY/OG), harness side.  ● **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST D: ONE LOW BEAM HEADLAMP IS INOPERATIVE

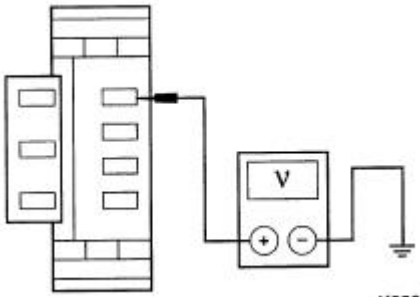
Test Step	Result / Action to Take
D1 CHECK THE VOLTAGE TO THE INOPERATIVE HEADLAMP BULB ● Disconnect: Inoperative Headlamp. ● Place the headlamp switch in the ON position. ● Place the multifunction switch in the low beam position. ● Measure the voltage between RH headlamp C1041 Pin 3, Circuit 1056 (DB/LG), or LH headlamp C1021 Pin 3, Circuit 1055 (WH/LG), harness side and ground.  ● **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new headlamp bulb; REFER to Bulb—Headlamp in this section. TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST E: ONE HIGH BEAM HEADLAMP IS INOPERATIVE

Test Step	Result / Action to Take
E1 CHECK THE VOLTAGE TO THE INOPERATIVE HEADLAMP BULB	
• Key in OFF position. • Disconnect: Inoperative Headlamp. • Place the headlamp switch in the ON position. • Place the multifunction switch in the high beam position. • Measure the voltage between LH headlamp C1021 Pin 2, Circuit 12 (LG/BK), or RH headlamp C1041 Pin 2, Circuit 12 (LG/BK), harness side and ground.  K25607-A • **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new headlamp bulb; REFER to Bulb—Headlamp in this section. TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.

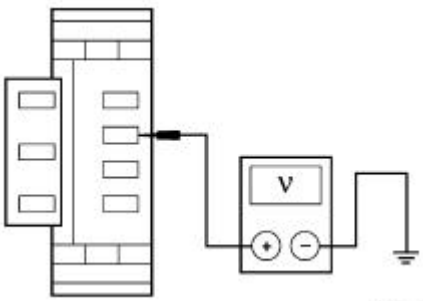
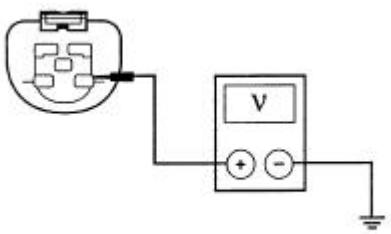
PINPOINT TEST F: THE HEADLAMPS ARE ON CONTINUOUSLY

Test Step	Result / Action to Take
F1 CHECK THE HEADLAMP SWITCH	
• Key in OFF position. • Disconnect: Headlamp Switch C205. • **Are the headlamps on?**	**Yes** GO to F2. **No** INSTALL a new headlamp switch; REFER to Lamp Switch—Headlamp in this section. TEST the system for normal operation.
F2 CHECK THE MULTIFUNCTION SWITCH	
• Disconnect: Multifunction Switch C202a. • **Are the headlamps on?**	**Yes** GO to F4. **No** GO to F3.
F3 CHECK CIRCUIT 15 (RD/YE) FOR SHORT TO POWER	
• Measure the voltage between multifunction switch C202a Pin 15, Circuit 15 (RD/YE), harness side and ground.	**Yes** REPAIR the circuit. TEST the system for normal operation. **No** INSTALL a new multifunction switch; REFER to Section 211-05. TEST the system for normal operation.



K25602-A

- **Is the voltage greater than zero volts?**

F4 CHECK CIRCUIT 13 (RD/BK) FOR SHORT TO POWER - Remove Fuse 4 (7.5A) and Fuse 10 (7.5A) from the CJB. - Measure the voltage between multifunction switch C202a Pin 507, Circuit 13 (RD/BK), harness side and ground.  GK1709-A - **Is the voltage greater than 0 volts?**	**Yes** REPAIR the circuit. TEST the system for normal operation. **No** GO to F5 .
F5 CHECK CIRCUIT 1056 (DB, LG) FOR VOLTAGE - Disconnect: Headlamp C1041. - Measure the voltage between RH headlamp C1041 Pin 3, Circuit 1056 (DB/LG), harness side and ground.  K25606-A - **Is the voltage greater than 0 volts?**	**Yes** REPAIR Circuit 1056 (DB/LG). TEST the system for normal operations. **No** REPAIR Circuit 1055 (WH/LG). TEST the system for normal operations.

Stoplamps

Refer to Wiring Diagrams Cell 90 , Turn/Stop/Hazard Lamps for schematic and connector information.

Special Tool(s)

ST1137-A	73III Automotive Meter or equivalent 105-R0057

Inspection and Verification

1. Verify the customer concerns.
2. Visually inspect for the following obvious signs of mechanical or electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Brake pedal position (BPP) switch	● Central junction box (CJB) fuse 41 (15A) ● Circuitry ● Bulb(s)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the concern is not visually evident, determine the symptom and refer to the Symptom Chart.

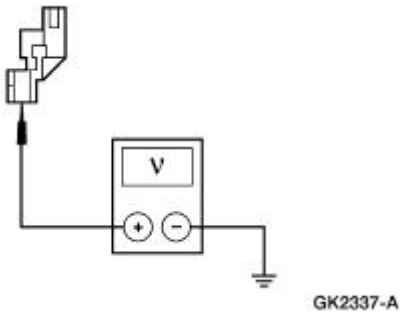
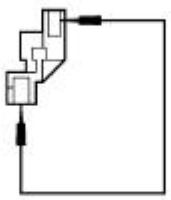
Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
● The stoplamps are inoperative	● Central junction box (CJB) fuse 41 (15A). ● Circuitry. ● Brake pedal position (BPP) switch.	● Go To Pinpoint Test G .
● One or more stoplamps are inoperative	● Circuitry. ● Multifunction switch.	● Go To Pinpoint Test H .
● The stoplamps are on continuously	● Brake pedal position (BPP) switch. ● Multifunction switch.	● Go To Pinpoint Test I .

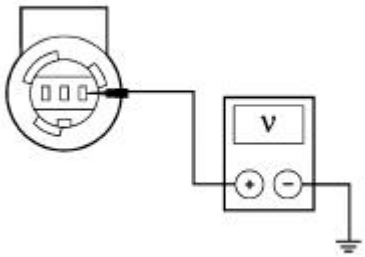
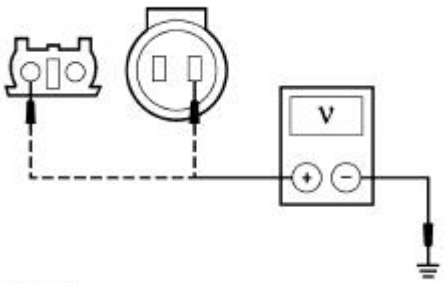
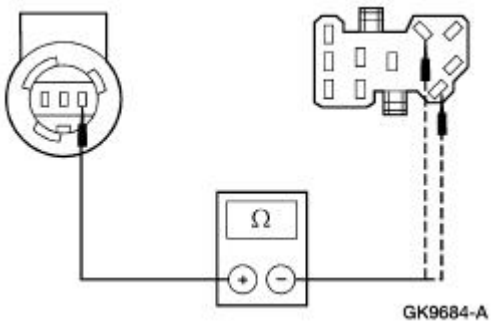
Pinpoint Tests

PINPOINT TEST G: THE STOPLAMPS ARE INOPERATIVE

Test Step	Result / Action to Take
G1 CHECK CIRCUIT 10 (LG/RD) FOR AN OPEN ● Disconnect: Brake Pedal Position (BPP) Switch C278. ● Measure the voltage between the BPP switch C278, circuit 10 (LG/RD), harness side and ground.  GK2337-A ● **Is the voltage greater than 10 volts?**	**Yes** GO to G2 . **No** REPAIR the circuit. TEST the system for normal operation.
G2 CHECK THE CIRCUIT 810 (RD/LG) FOR AN OPEN ● Connect a 10A fused jumper wire between C278, circuit 10 (LG/RD), harness side and C278, circuit 810 (RD/LG), harness side.  GK2338-A ● **Do the stoplamps illuminate?**	**Yes** INSTALL a new BPP switch. REFER to Lamp Switch—Brake Pedal Position (BPP) in this section. TEST the system for normal operation. **No** REPAIR circuit 810 (RD/LG) or 569 (DG) as necessary. TEST the system for normal operation.

PINPOINT TEST H: ONE OR MORE STOPLAMPS ARE INOPERATIVE

Test Step	Result / Action to Take
H1 CHECK THE VOLTAGE TO THE INOPERATIVE STOPLAMP ● Disconnect: Inoperative Stoplamp. ● If a rear stoplamp is inoperative, measure the voltage between the inoperative stoplamp connector circuit 9 (LG/OG) (LH) or circuit 5 (OG/LB) (RH), harness side and ground, while pressing the brake pedal.	**Yes** REPAIR circuit 1205 (BK). TEST the system for normal operation. **No** If high mounted stoplamp, REPAIR circuit 569 (DG). TEST the system for normal

 GK9682-A ● If the high mounted stoplamp is inoperative, measure the voltage between the inoperative high mounted stoplamp C475 (C4199 for Cobra) pin 1, circuit 569 (DG), harness side and ground while pressing the brake pedal.  A0050860 ● **Is the voltage greater than 10 volts?**	operation. If rear stoplamp, GO to H2 .
H2 CHECK CIRCUIT 9 (LG/OG) OR 5 (OG/LB) FOR AN OPEN	
● Disconnect: Multifunction Switch C202b. ● Measure the resistance between the inoperative stoplamp connector and multifunction switch C202b pin 9, circuit 9 (LG/OG) (LH), or C202b pin 5, circuit 5 (OG/LB) (RH).  GK9684-A ● **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new multifunction switch. REFER to Section 211-05 . TEST the system for normal operation. **No** REPAIR the circuit in question. TEST the system for normal operation.

PINPOINT TEST I: THE STOPLAMPS ARE ON CONTINUOUSLY

Test Step	Result / Action to Take
I1 CHECK THE BRAKE PEDAL POSITION (BPP) SWITCH	
● Key in OFF position. ● Disconnect: BPP Switch C278. ● **Do the stoplamps continue to illuminate?**	**Yes** GO to I2 . **No** INSTALL a new BPP switch. REFER to Lamp Switch—Brake Pedal Position (BPP) . TEST the system for normal

	operation.
I2 CHECK THE SPEED CONTROL SYSTEM • Disconnect: Speed Control Servo C122. • **Do the stoplamps continue to illuminate?**	**Yes** GO to I3 . **No** REFER to Section 310-03 .
I3 CHECK CIRCUIT 511 (LG) FOR SHORT TO POWER • Disconnect: Central Junction Box (CJB) Fuse 35 (15A). • **Do the stoplamps continue to illuminate?**	**Yes** GO to I4 . **No** REPAIR the circuit. TEST the system for normal operation.
I4 CHECK CIRCUIT 810 (LG/RD) FOR SHORT TO POWER • Disconnect: CJB Fuse 41 (15A). • **Do the stoplamps continue to illuminate?**	**Yes** GO to I5 . **No** REPAIR the circuit. TEST the system for normal operation.
I5 CHECK THE MULTIFUNCTION SWITCH • Disconnect: Multifunction Switch C202b. • **Do the stoplamps continue to illuminate?**	**Yes** If the high mounted stoplamp is illuminated, REPAIR circuit 569 (DG) or 511 (LG) as necessary. TEST the system for normal operation. If only the LH stoplamp is illuminated, REPAIR circuit 9 (LG/OG). TEST the system for normal operation. If only the RH stoplamp is illuminated, REPAIR circuit 5 (OG/LB). TEST the system for normal operation. **No** INSTALL a new multifunction switch. REFER to Section 211-05 . TEST the system for normal operation.

Turn Signal and Hazard Lamps

Refer to Wiring Diagrams Cell 90 , Turn/Stop/Hazard Lamps for schematic and connector information.

Special Tool(s)

ST1137-A	73 III Automotive Meter 105-R0057 or equivalent

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Multifunction switch	● Central junction box (CJB) Fuse 13 (15A). ● CJB Fuse 18 (15A). ● Circuitry ● Electronic flasher ● Turn signal/hazard lamp

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

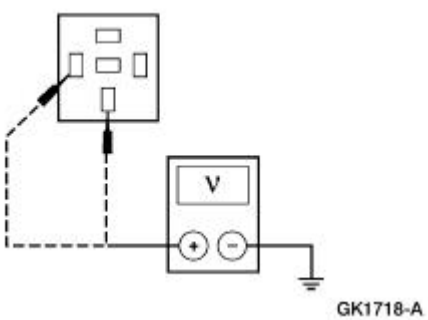
Symptom Chart

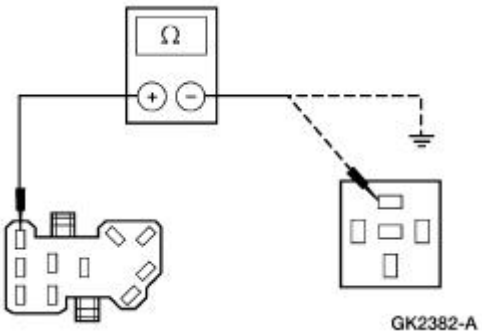
Condition	Possible Sources	Action
● The turn signal lamps are never on	● Central junction box (CJB) fuse 13 (15A). ● CJB Fuse 18 (15A). ● Circuitry. ● Multifunction switch.	● Go To Pinpoint Test J .

	• Electronic flasher.	
• The hazard flasher lamps are never on	• Central junction box (CJB) fuse 13 (15A). • Circuitry. • Multifunction switch. • Electronic flasher.	• Go To Pinpoint Test K .
• One turn signal/hazard lamp is never on	• Turn signal/hazard flasher lamp. • Circuitry.	• REPAIR inoperative turn signal/hazard flasher lamp circuit ▪ LF Circuit 3 (LG/WH). ▪ RF Circuit 2 (WH/LB). ▪ LR Circuit 9 (LG/OG). ▪ RR Circuit 5 (OG/LB).
• The turn signal lamps are always on	• Multifunction switch.	• INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation.
• The hazard flasher lamps are always on	• Multifunction switch.	• INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation.

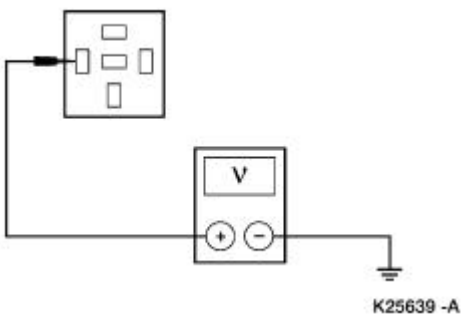
Pinpoint Tests

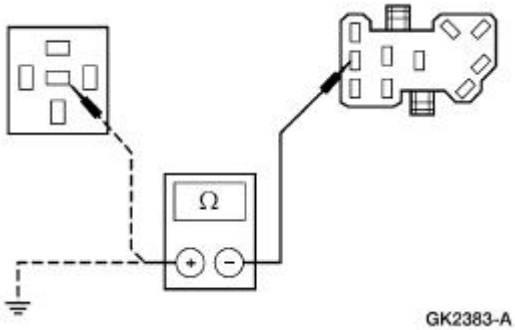
PINPOINT TEST J: THE TURN SIGNAL LAMPS ARE NEVER ON

Test Step	Result / Action to Take
J1 CHECK THE VOLTAGE TO THE ELECTRONIC FLASHER	
• Disconnect: Electronic Flasher C2141. • Key in ON position. • Measure the voltage between the following electronic flasher C2141 circuits, harness side and ground. ▪ Pin 2, Circuit 1039 (BK/YE). ▪ Pin 3, Circuit 383 (RD/WH).  GK1718-A • **Are the voltages greater than 10 volts?**	**Yes** GO to J2 . **No** REPAIR the circuit in question. TEST the system for normal operation.
J2 CHECK CIRCUIT 44 (LB)	
• Key in OFF position.	**Yes**

• Disconnect: Multifunction Switch C202b. • Measure the resistance between multifunction switch C202b Pin 44, Circuit 44 (LB), harness side and the electronic flasher C2141 Pin 1, Circuit 44 (LB), harness side; and between multifunction switch C202b Pin 44, Circuit 44 (LB), harness side and ground.  GK2382-A • **Is the resistance less than 5 ohms between the multifunction switch and the electronic flasher, and greater than 10,000 ohms between the multifunction switch and ground?**	GO to J3 . **No** REPAIR the circuit. TEST the system for normal operation.
J3 CHECK THE CONTINUITY OF THE MULTIFUNCTION SWITCH	
• Carry out the multifunction switch component test. Refer to Wiring Diagrams Cell 149 for schematic and connector information. • **Is the switch OK?**	**Yes** INSTALL a new electronic flasher. TEST the system for normal operation. **No** INSTALL a new multifunction switch. REFER to Section 211-05 . TEST the system for normal operation.

PINPOINT TEST K: THE HAZARD FLASHER LAMPS ARE NEVER ON

Test Step	Result / Action to Take
K1 CHECK THE VOLTAGE TO THE ELECTRONIC FLASHER	
• Disconnect: Electronic Flasher C2141. • Measure the voltage between electronic flasher C2141 Pin 3, Circuit 383 (RD/WH), harness side and ground.  K25639 -A • **Is the voltage greater than 10 volts?**	**Yes** GO to K2 . **No** REPAIR the circuit. TEST the system for normal operation.
K2 CHECK CIRCUIT 385 (WH/RD)	
• Disconnect: Multifunction Switch C202b.	**Yes**

• Measure the resistance between multifunction switch C202b Pin 385, Circuit 385 (WH/RD), harness side and electronic flasher C2141 Pin 4, Circuit 385 (WH/RD), harness side; and between multifunction switch C202b Pin 385, Circuit 385 (WH/RD), harness side and ground.  • **Is the resistance less than 5 ohms between the multifunction switch and the electronic flasher, and greater than 10,000 ohms between the multifunction switch and ground?**	GO to K3 . **No** REPAIR the circuit. TEST the system for normal operation.
K3 CHECK THE CONTINUITY OF THE MULTIFUNCTION SWITCH	
• Carry out the multifunction switch component test. Refer to Wiring Diagrams Cell 149 for schematic and connector information. • **Is the switch OK?**	**Yes** INSTALL a new electronic flasher. TEST the system for normal operation. **No** INSTALL a new multifunction switch; REFER to Section 211-05 . TEST the system for normal operation.

Parking, Rear and License Lamps

Refer to Wiring Diagrams Cell 92 , Exterior for schematic and connector information.

Special Tool(s)

ST1137-A	73 III Automotive Meter or equivalent 105-R0057

Inspection and Verification

1. Verify the customer concern by operating the parking lamps.
2. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Damaged multifunction switch (13K359) ● Damaged headlamp switch (11654)	● Blown battery junction box (BJB) Fuse 2 (30A) ● Damaged wiring harness ● Loose or corroded connections ● Damaged parking, rear or license lamp

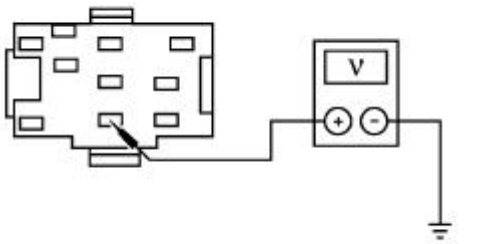
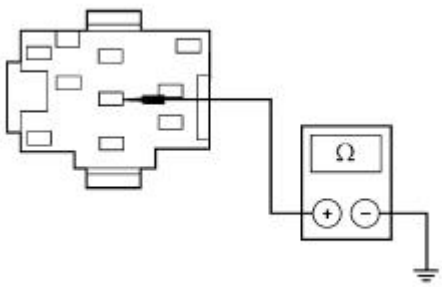
3. If the concern is not visually evident, determine the symptom and proceed to Symptom Chart.

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
● The parking, rear or license lamps are inoperative	● BJB Fuse 2 (30A). ● Circuitry. ● Headlamp switch.	● GO to Pinpoint Test L .
● One or more parking, rear or license bulbs(s) is inoperative	● Parking, rear or license bulb(s). ● Circuitry.	● GO to Pinpoint Test M .
● The parking, rear or license lamps are on continuously	● Headlamp switch. ● Circuitry.	● GO to Pinpoint Test N .

PINPOINT TEST L: THE PARKING, REAR OR LICENSE LAMPS ARE INOPERATIVE

Test Step	Result / Action to Take
L1 CHECK THE VOLTAGE TO THE HEADLAMP SWITCH	**Yes** GO to L2. **No** REPAIR the circuit. TEST the system for normal operation.
• Disconnect: Headlamp Switch C205. • Measure the voltage between headlamp switch C205 Pin B2, Circuit 195 (TN/WH), harness side and ground.  DK0246-A • **Is the voltage greater than 10 volts?**	
L2 CHECK CIRCUIT 14 (BN) FOR OPEN	**Yes** INSTALL a new headlamp switch; REFER to Lamp Switch—Headlamp. TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.
• Measure the resistance between headlamp switch C205 Pin R, Circuit 14 (BN), harness side and ground.  GK9685-A • **Is the resistance less than 5 ohms?**	

PINPOINT TEST M: ONE OR MORE PARKING, REAR OR LICENSE LAMP(S) IS INOPERATIVE

Test Step	Result / Action to Take
M1 CHECK THE VOLTAGE TO THE INOPERATIVE LAMP(S)	**Yes** REPAIR Circuit 1205 (BK) for an open. TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.
• Key in OFF position. • Disconnect: Inoperative Lamp. • Place the headlamp switch in the parking lamps ON position. • Measure the voltage between inoperative lamp connector Circuit 14 (BN), harness side and ground. • **Is the voltage greater than 10 volts?**	

PINPOINT TEST N: THE PARKING, REAR OR LICENSE LAMPS ARE ON CONTINUOUSLY

Test Step	Result / Action to Take
N1 CHECK THE HEADLAMP SWITCH ● Key in OFF position. ● Disconnect: Headlamp Switch C205. ● Key in ON position. ● **Are the parking, rear or licences lamps on?**	**Yes** REPAIR Circuit 14 (BN) for a short to battery. TEST the system for normal operation. **No** INSTALL a new headlamp switch; REFER to Lamp Switch—Headlamp . TEST the system for normal operation.

Fog Lamps

Refer to Wiring Diagrams Cell 86 , Fog Lamps for schematic and connector information.

Special Tool(s)

ST1137-A	73 III Automotive Meter or equivalent 105-R0057

Principles of Operation

The fog lamps will only illuminate when the low beam or parking lamps are illuminated. Voltage from the parking lamp circuit is used to activate the fog lamp relay when the fog lamp switch is ON. Voltage from the high beam headlamp circuit will activate the fog lamp interrupt relay. When the fog lamp interrupt relay is active, the ground path is removed from the fog lamp relay, turning off the fog lamps.

Inspection and Verification

1. Verify the customer concern by operating the fog lamps.
2. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Damaged headlamp switch (11654) ● Damaged fog lamp switch ● Damaged multifunction switch (13K359)	● Blown battery junction box (BJB) Fuse 27 (20A) ● Blown central junction box (CJB) Fuse 38 (20A) ● Damaged wiring harness ● Loose or corroded connections ● Damaged fog lamp relay ● Damaged fog lamp interrupt relay ● Damaged fog lamp

3. If the concern is not visually evident, determine the symptom and proceed to Symptom Chart.

Symptom Chart

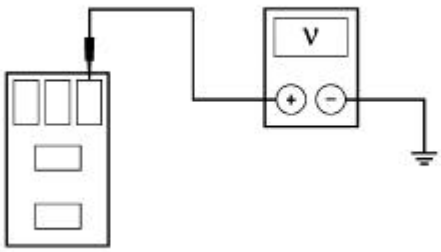
Symptom Chart

Condition	Possible Sources	Action
• The fog lamps are inoperative	• BJB Fuse 27 (20A). • CJB Fuse 38 (20A). • Circuitry. • Fog lamp relay. • Fog lamp interrupt relay. • Headlamp switch. • Fog lamp switch. • Multifunction switch.	• GO to Pinpoint Test O .
• The individual fog lamp is inoperative	• Fog lamp bulb. • Circuitry.	• GO to Pinpoint Test P .
• The fog lamps are on continuously	• Fog lamp relay. • Circuitry. • Fog lamp switch.	• GO to Pinpoint Test Q .

Pinpoint Tests

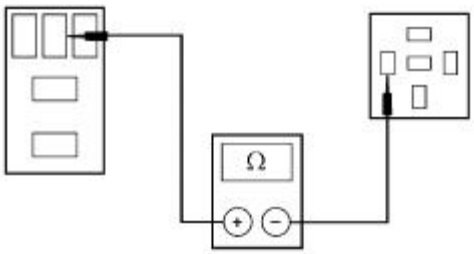
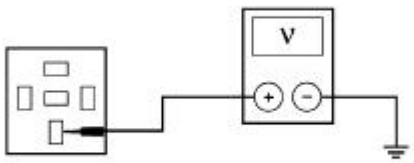
PINPOINT TEST O: THE FOG LAMPS ARE INOPERATIVE

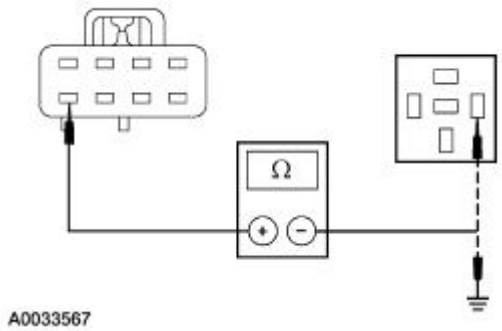
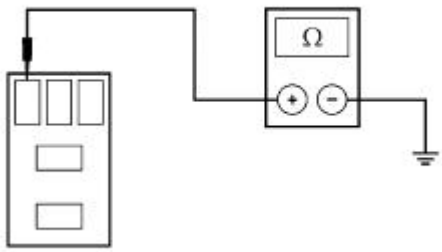
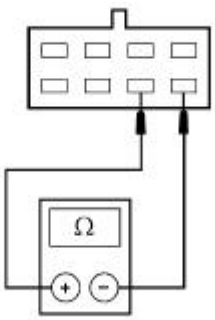
Test Step	Result / Action to Take
O1 CHECK THE PARK LAMPS	
• Place the headlamp switch in the PARK position. • Place the multifunction switch in low beam position. • **Do the park lamps illuminate?**	**Yes** Turn off the headlamp switch. GO to O2 . **No** GO to Pinpoint Test L .
O2 CHECK THE FOG LAMP RELAYS	
• Disconnect: Fog Lamp Relay. • Disconnect: Fog Lamp Interrupt Relay. • Check the fog lamp relay and fog lamp interrupt relay; refer to Wiring Diagrams Cell 149. • **Are the relays OK?**	**Yes** GO to O3 . **No** INSTALL new relay(s). TEST the system for normal operation.
O3 CHECK THE CIRCUIT 12 (LG/BK)	
• Measure the voltage between fog lamp interrupt relay connector Pin 1, Circuit 12 (LG/BK), harness side and ground.	**Yes** GO to O4 . **No** REPAIR the circuit. TEST the system for normal operation.



GA5887-A

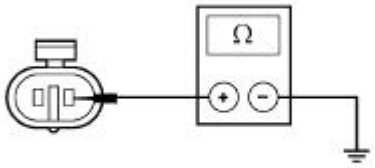
- **Is the voltage greater than 0 volts?**

O4 CHECK CIRCUIT 275 (YE)	
• Measure the resistance between fog lamp interrupt relay connector Pin 4, Circuit 275 (YE), harness side and fog lamp relay connector Pin 85, Circuit 275 (YE), harness side.  GK9686-A • **Is the resistance less than 5 ohms?**	**Yes** GO to O5 . **No** REPAIR the circuit. TEST the system for normal operation.
O5 CHECK CIRCUIT 477 (LB/BK) FOR OPEN	
• Measure the voltage between fog lamp relay connector Pin 30, Circuit 477 (LB/BK), harness side and ground.  GN1437-A • **Is the voltage greater than 10 volts?**	**Yes** GO to O6 . **No** REPAIR the circuit. TEST the system for normal operation.
O6 CHECK CIRCUIT 188 (WH/BK)	
• Disconnect: Fog Lamp Switch C240. • Measure the resistance between fog lamp switch C240 Pin 1, Circuit 188 (WH/BK), harness side and fog lamp relay connector Pin 86, Circuit 188 (WH/BK), harness side; and between fog lamp switch C240 Pin 1, Circuit 188 (WH/BK), harness side and ground.	**Yes** GO to O7 . **No** REPAIR the circuit. TEST the system for normal operation.

 A0033567 ● **Is the resistance less than 5 ohms?**	
O7 CHECK CIRCUIT 1205 (BK)	**Yes** GO to O8 . **No** REPAIR the circuit. TEST the system for normal operation.
● Measure the resistance between fog lamp interrupt relay connector Pin 2, Circuit 1205 (BK), and ground.  GA5888-A ● **Is the resistance less than 5 ohms?**	
O8 CHECK THE FOG LAMP SWITCH	**Yes** REPAIR Circuit 478 (TN/OG). TEST the system for normal operation. **No** INSTALL a new fog lamp switch. TEST the system for normal operation.
● Measure the resistance between fog lamp switch C240 Pin 1, Circuit 188 (WH/BK), connector side and fog lamp switch C240 Pin 2, Circuit 14 (BN), connector side with the fog lamp switch on.  A0033570 ● **Is the resistance less then 5 ohms?**	

PINPOINT TEST P: THE INDIVIDUAL FOG LAMP IS INOPERATIVE

Test Step	Result / Action to Take
P1 CHECK THE GROUND TO THE FOG LAMP	**Yes** REPAIR Circuit 478 (TN/OG) for open. TEST the system for normal operation.
● Key in OFF position. ● Disconnect: Inoperative Fog Lamp. ● Measure the resistance between inoperative fog lamp C162 Pin 1 (RH) or C152 Pin 1 (LH), Circuit 1205 (BK), harness side and ground.	

 GK9730-A ● **Is the resistance less than 5 ohms?**	**No** REPAIR Circuit 1205 (BK). TEST the system for normal operation.

PINPOINT TEST Q: THE FOG LAMPS ARE ON CONTINUOUSLY

Test Step	Result / Action to Take
Q1 CHECK THE FOG LAMP RELAY ● Disconnect: Fog Lamp Relay. ● **Are the fog lamps off?**	**Yes** GO to Q2 . **No** REPAIR Circuit 478 (TN/OG). TEST the system for normal operation.
Q2 CHECK FOG LAMP RELAY ● Check the fog lamp relay; refer to Wiring Diagrams Cell 149. ● **Is the fog lamp relay OK?**	**Yes** RECONNECT the fog lamp relay. GO to Q3 . **No** INSTALL a new fog lamp relay. TEST the system for normal operation.
Q3 CHECK FOG LAMP SWITCH ● Disconnect: Fog Lamp Switch C240. ● **Are the fog lamps off?**	**Yes** INSTALL a new fog lamp switch. TEST the system for normal operation. **No** REPAIR Circuit 188 (WH/BK) for short. TEST the system for normal operation.

Reversing Lamps

Refer to Wiring Diagrams Cell 93 , Backup Lamps for schematic and connector information.

Special Tool(s)

ST1137-A	73III Automotive Meter or equivalent 105-R0057

Inspection and Verification

1. Verify the customer concern by operating the reversing lamps.
2. Visually inspect for obvious signs of mechanical and electrical damage; refer to the following chart:

Visual Inspection Chart

Mechanical	Electrical
● Damaged digital transmission range (DTR) sensor (automatic transmission [A/T]) ● Damaged reversing lamp switch (manual transmission [M/T])	● Blown central junction box (CJB) Fuse 11 (15A) ● Damaged wiring harness ● Loose or corroded connections ● Damaged reversing lamp ● Damaged DTR sensor (automatic transmission [A/T]) ● Damaged reversing lamp switch (manual transmission [M/T])

3. If the concern is not visually evident, determine the symptom and proceed to Symptom Chart.

Symptom Chart

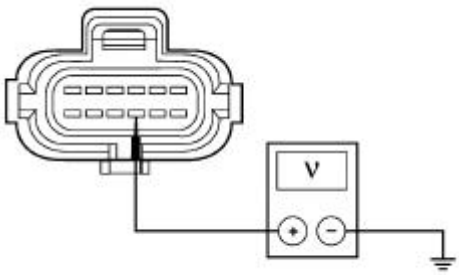
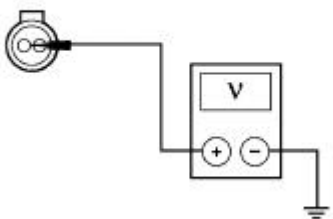
Symptom Chart

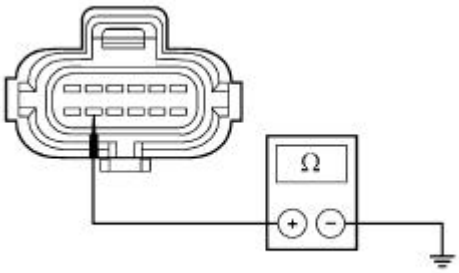
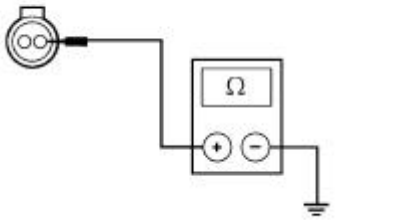
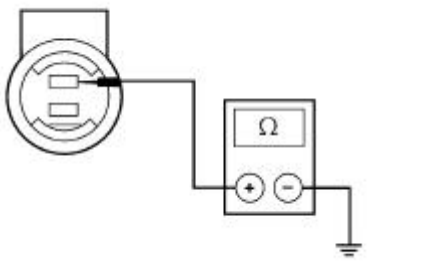
Condition	Possible Sources	Action
● The reversing lamps are inoperative	● CJB Fuse 11 (15A). ● Bulbs. ● Circuitry. ● DTR sensor (A/T). ● Reversing lamp switch (M/T).	● GO to Pinpoint Test R .

• The individual reversing lamp is inoperative	• Bulb. • Circuitry.	• GO to Pinpoint Test S .
• The reversing lamps are on continuously	• Circuitry. • DTR sensor (A/T). • Reversing lamp switch (M/T).	• GO to Pinpoint Test T .

Pinpoint Tests

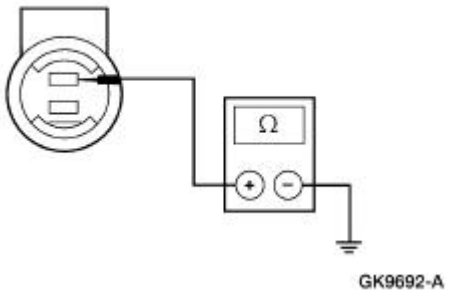
PINPOINT TEST R: THE REVERSING LAMPS ARE INOPERATIVE

Test Step	Result / Action to Take
R1 CHECK THE VOLTAGE TO THE DTR SENSOR (A/T) OR THE REVERSING LAMP SWITCH (M/T)	
• Key in OFF position. • Disconnect: DTR Sensor C167 (A/T). • Disconnect: Reversing Lamp Switch C169 (M/T). • Key in ON position. • If equipped with A/T, measure the voltage between DTR sensor C167 Pin 9, Circuit 1087 (OG), harness side and ground.  GK2406-A • If equipped with M/T, measure the voltage between reversing lamp switch C169, Circuit 1087 (OG), harness side and ground.  GK9690-A • **Is the voltage greater than 10 volts?**	**Yes** GO to R2 . **No** REPAIR the circuit. TEST the system for normal operation.
R2 CHECK CIRCUIT 140 (BK/PK) FOR OPEN	
• Key in OFF position. • If equipped with A/T, measure the resistance between DTR sensor C167 Pin 11, Circuit 140 (BK/PK), harness side and ground.	**Yes** INSTALL a new DTR sensor (A/T) or reversing lamp switch (M/T); REFER to Section 307-01 , Section 308-03A or Section 308-03B . TEST the

 GK2407-A ● If equipped with M/T, measure the resistance between reversing lamp switch C169, Circuit 140 (BK/PK), harness side and ground.  GK9691-A ● **Is the resistance less than 5 ohms?**	system for normal operation. **No** GO to R3 .
R3 CHECK REVERSING LAMPS GROUND ● Disconnect: Inoperative Reversing Lamp. ● Measure the resistance between LH reversing lamp C451, Circuit 1205 (BK), or RH reversing lamp C461, Circuit 1205 (BK), harness side and ground.  GK9692-A ● **Is the resistance less than 5 ohms?**	**Yes** REPAIR Circuit 140 (BK/PK) for open. TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST S: THE INDIVIDUAL REVERSING LAMP IS INOPERATIVE

Test Step	Result / Action to Take
S1 CHECK REVERSING LAMPS GROUND ● Key in OFF position. ● Disconnect: Inoperative Reversing Lamp. ● Measure the resistance between LH reversing lamp C451, Circuit 1205 (BK), or RH reversing lamp C461, Circuit 1205 (BK), harness side and ground.	**Yes** REPAIR Circuit 140 (BK/PK) for open. TEST the system for normal operation.

 ● **Is the resistance less than 5 ohms?**	**No** REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST T: THE REVERSING LAMPS ARE ON CONTINUOUSLY

Test Step	Result / Action to Take
T1 CHECK THE CONTINUITY OF THE DTR SENSOR (A/T) OR THE REVERSING LAMP SWITCH (M/T)	
● Key in OFF position. ● Disconnect: DTR Sensor C167 (A/T). ● Disconnect: Reversing Lamp Switch C169 (M/T). ● Set the parking brake. ● Key in ON position. ● Select REVERSE. ● **Are the reversing lamps illuminated?**	**Yes** REPAIR Circuit 140 (BK/PK) for short to battery. TEST the system for normal operation. **No** INSTALL a new DTR sensor (A/T) or reversing lamp switch (M/T); REFER to Section 307-01 , Section 308-03A , or Section 308-03B . TEST the system for normal operation.

Headlamp Adjustment

Headlamp Aiming

1. The headlamp aiming procedure depends on the type of beam pattern the headlamp is equipped with. Vehicles may come equipped with visual optical right (VOR), visual optical left (VOL), or SAE only (includes sealed beam type) headlamps. To identify the headlamp beam pattern, look on the headlamp lens. Molded in small letters on the headlamp lens is one of the following:
    - SAE
    - VOR or SAE
    - VOL or SAE
2. Once the headlamp beam pattern is identified, aim the headlamps using one of the following methods as applicable.
    - Photometric aimers can aim SAE, VOR and VOL type headlamps. This is the preferred method of headlamp aiming.
    - Visual or screen method aiming can be used to aim SAE, VOR and VOL type headlamps.
    - Mechanical aimers can be used only with SAE type headlamps. Lamps that can be aimed mechanically will have three nibs molded into the lens of the lamp.

Photometric Aiming

1. For the photometric aiming procedure, refer to the appropriate photometric headlamp aimer instruction manual.

Screen Method Aiming

All headlamp types

NOTE: Horizontal aim is not necessary for VOR or VOL headlamps.

NOTE: Consult your state vehicle inspection manual for recommended tolerance ranges for visual aiming.

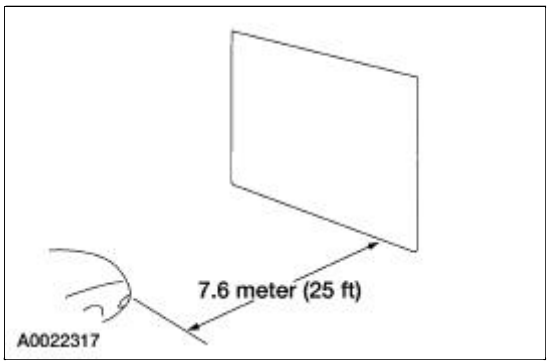
NOTE: The sight shield may need to be positioned or removed for access to the adjusters.

1. Before starting headlamp adjustment:
    - Check the tire inflation.
    - Check that no other load is in the vehicle other than a half tank of fuel.
    - Check that the headlamps are clean.
    - Check for correct headlamp operation.

- Check that the vehicle is on level ground.
- If the vehicle is equipped with air suspension, make sure that the switch is on.

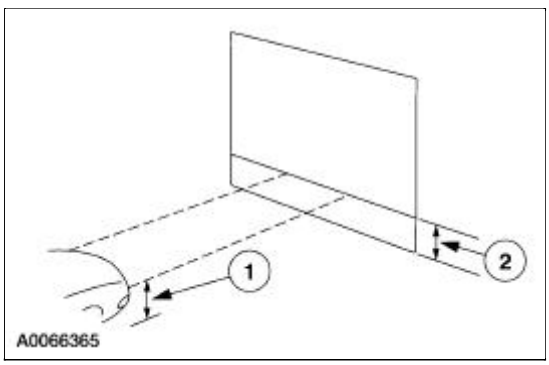
2. **NOTE:** The vertical wall or screen must be a minimum of 2.4 meters (8 feet) wide.

   Park the vehicle on a level surface approximately 7.6 meters (25 feet) from the vertical wall or screen directly in front of it.



3. **NOTE:** The center of the lamp is marked by a 3 mm (0.12 in) circle on the headlamp lens.

   Mark a horizontal reference line on the vertical wall or screen.
   1. Measure the center of the headlamp height to ground and record.
   2. Make a 2.4 meter (8 foot) horizontal mark (masking tape) on the vertical wall or screen at the same distance from the ground as previously recorded.



4. **NOTE:** This procedure should be done in a dark environment to effectively see the headlamp beam pattern.

   Turn on the low beam headlamps to illuminate the wall or screen and open the hood.

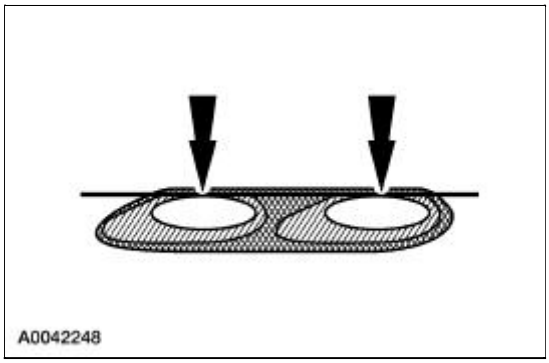
5. **NOTE:** For SAE type headlamps, the appearance of the beam pattern may vary between vehicles.

   On the wall or screen, locate the high intensity area of the beam pattern. Place the top edge of the high intensity zone even with the horizontal reference line.

VOR type headlamps

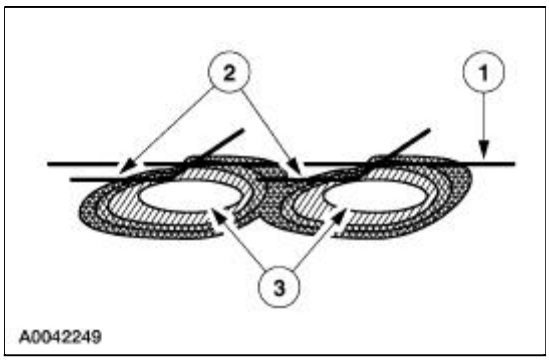
6. **NOTE:** The appearance of the VOR beam pattern may vary between vehicles.

   Identify at the top edge of this high intensity area a distinct horizontal cutoff in the beam pattern. If the top edge of this cutoff is not even with the horizontal reference line, the headlamp beam will need to be adjusted.



VOL type headlamps

7. For VOL type headlamps, there will be a distinct cutoff in the left portion of the beam pattern. The edge of this cutoff should be positioned 50.2 mm (2 in) below the horizontal reference line.
    1. Horizontal reference line.
    2. Top edge of the beam pattern.
    3. High intensity zone.



Mechanical Aiming

1. For the mechanical aiming procedure, refer to the appropriate mechanical headlamp aimer instruction manual.

Bulb —Headlamp

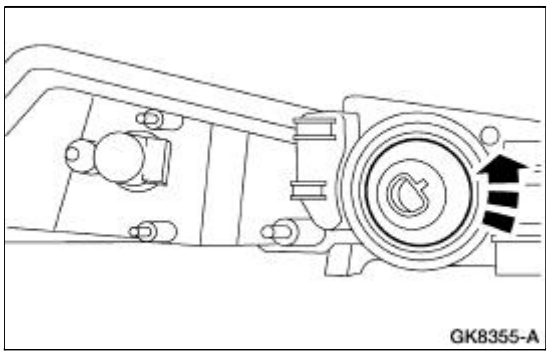
Removal

WARNING: The halogen bulb contains gas under pressure. The bulb may shatter if the glass envelope is scratched or if the bulb is dropped. Handle the bulb only by its base. Grasp the bulb only by its base. Avoid touching the glass envelope.

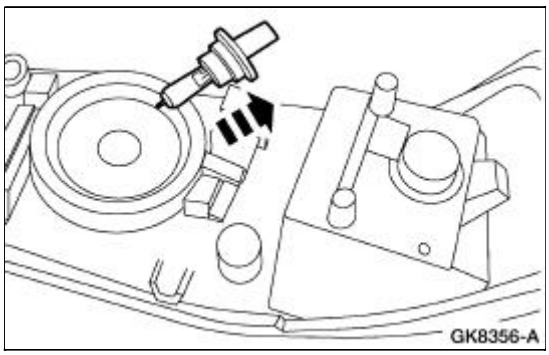
NOTE: The headlamp bulb should not be removed from the headlamp until just before a replacement bulb is installed. Removing the bulb for an extended period of time may effect headlamp bulb performance. Contaminants may enter the headlamp where they can settle on the lens and reflector. Never turn on the headlamps with the bulb removed.

1. Remove the headlamp assembly. For additional information, refer to Lamp Assembly—Headlamp .

2. Rotate the headlamp bulb retainer counterclockwise.



3. Remove the headlamp bulb and retainer.
   - Grasp the headlamp bulb by its base and remove the bulb.



Installation

1. **WARNING: The halogen bulb contains gas under pressure. The bulb may shatter if the glass envelope is scratched or if the bulb is dropped. Handle the bulb only by its base. Grasp the bulb only by its base. Avoid touching the glass envelope.**

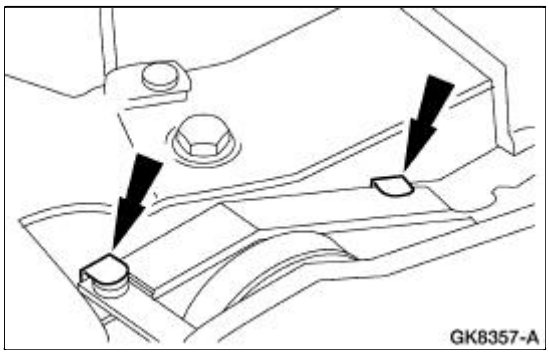
   To install, reverse the removal procedure.

Lamp Assembly —Headlamp

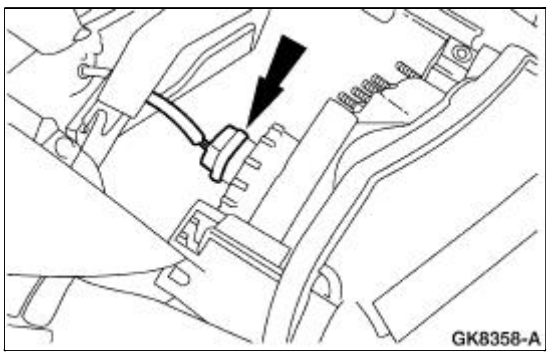
Removal

1. **NOTE:** Make sure that the headlamp switch and the ignition switch are in the OFF position.

   Raise the headlamp retainers.



2. Remove the headlamp assembly.
   - Disconnect the electrical connectors and replace the lamp if necessary.



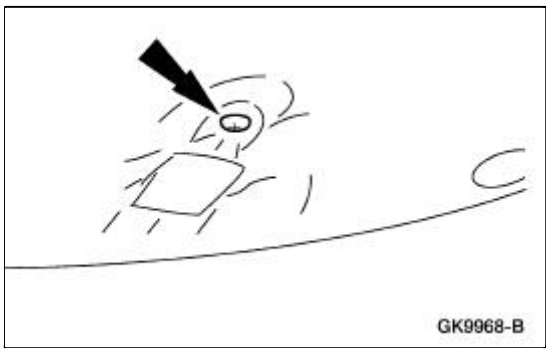
Installation

1. To install, reverse the removal procedure.
   - If necessary, adjust the headlamps. For additional information, refer to Headlamp Adjustment in this section.

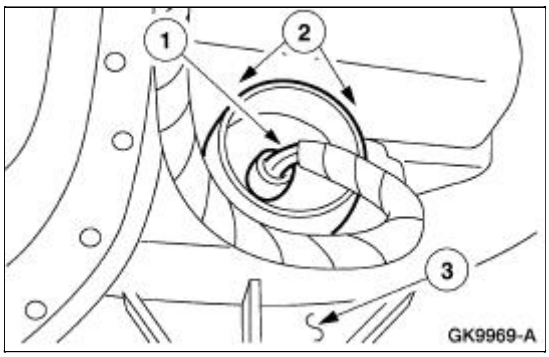
Lamp Assembly —Fog Lamp (GT)

Removal

1. Raise and support the vehicle.
2. Remove the screw.



3. Partially lower the vehicle and remove the fog lamp assembly.
    1. Disconnect the electrical connector.
    2. Remove the two screws.
    3. Remove the fog lamp assembly and replace the bulb if necessary.



Installation

1. **NOTE:** Be sure the fascia clip is correctly installed on the bottom side of the fog lamp assembly bracket.

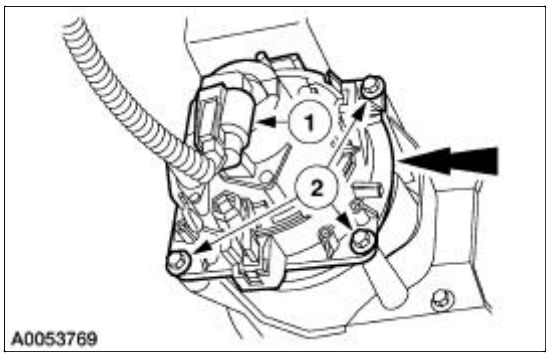
    To install, reverse the removal procedure.

Lamp Assembly —Fog Lamp (Cobra)

Removal and Installation

1. Raise and support the vehicle. For additional information, refer to Section 100-02

2. Remove the fog lamp assembly.
    1. Disconnect the electrical connector.
    2. Remove the four screws.

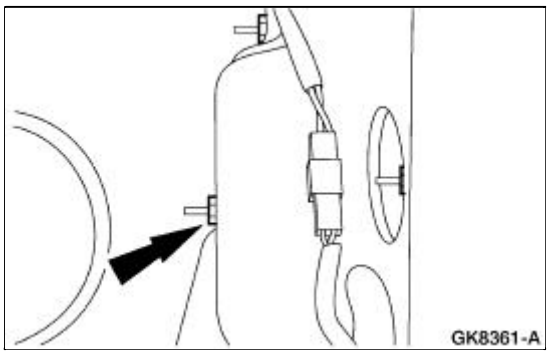


3. To install, reverse the removal procedure.

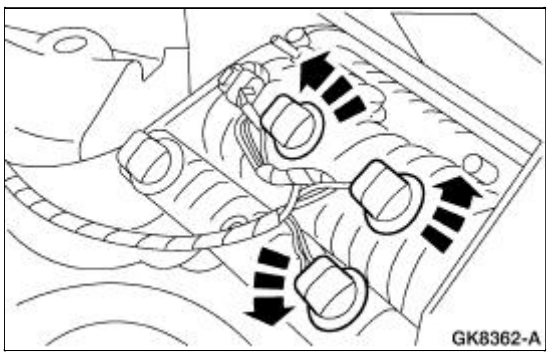
Lamp Assembly —Rear

Removal

1. Position the luggage compartment trim aside.
   - Remove the two retainers.
2. Remove the four rear lamp nuts.

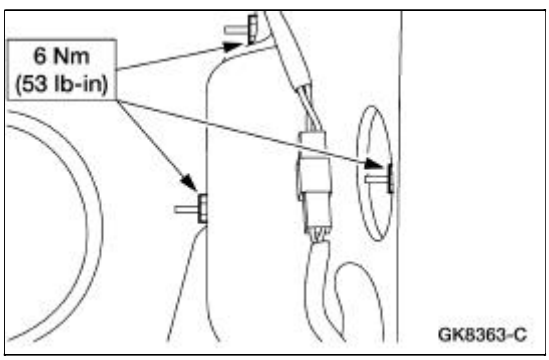


3. Remove the rear lamp assembly, disconnect the electrical connectors and replace the bulbs if necessary.



Installation

1. To install, reverse the removal procedure.

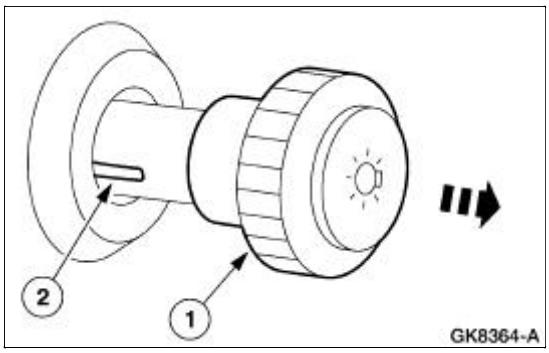


Lamp Switch —Headlamp

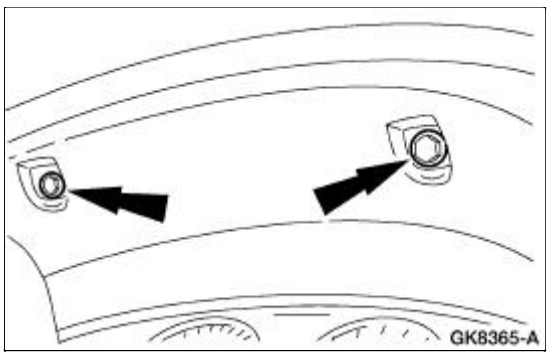
Removal

1. Disconnect the battery ground cable.

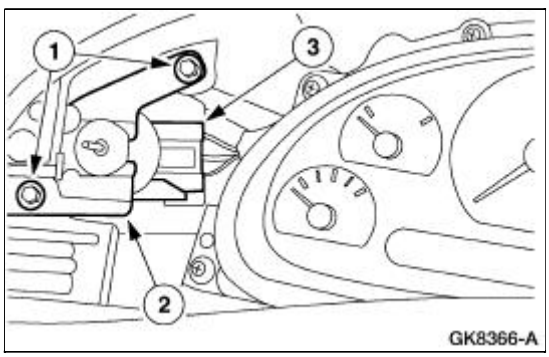
2. Remove the headlamp switch knob.
    1. Pull the headlamp switch knob out.
    2. Insert a thin tool into the slot, pull and remove the headlamp switch knob.



3. Remove the instrument panel cluster finish panel.
    - Remove the screws and remove the finish panel.



4. Remove the headlamp switch.
    1. Remove the screws.
    2. Remove the switch.
    3. Disconnect the electrical connectors.



Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

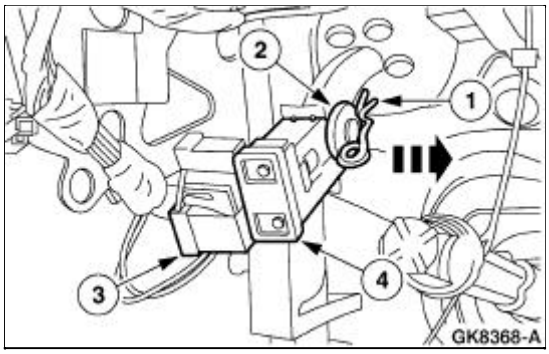
   To install, reverse the removal procedure.

Lamp Switch —Brake Pedal Position (BPP)

Removal

1. Disconnect the battery ground cable.

2. Remove the brake pedal position (BPP) switch.
    1. Remove the clip.
    2. Remove the retainer.
    3. Disconnect the electrical connector.
    4. Remove the BPP switch.



Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

    To install, reverse the removal procedure.

Interior Lighting

The interior lighting system consists of the following:

- map/dome lamp assembly
- rear-high mount/cargo lamp assembly
- dimmer switch
- door ajar switch (located on the door latches)
- rear view mirror interior lamp (convertible only)
- courtesy lamp
- vanity mirror lamp assembly
- transmission range indicator

Interior Lighting

Refer to Wiring Diagrams Cell 111 , Remote Control Alarm and Lock System for schematic and connector information.

Refer to Wiring Diagrams Cell 59 , Generic Electronic Module for schematic and connector information.

Refer to Wiring Diagrams Cell 89 , Courtesy Lamps for schematic and connector information.

Special Tool(s)

ST1137-A	73 Digital Multimeter or equivalent 105-R0051
ST2332-A	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR (NGS) Tester 418-F052, or equivalent scan tool

Principles of Operation

Battery Saver

The battery saver feature provides automatic shut-off of power to demand and courtesy lamp circuitry. When the generic electronic module (GEM) detects the ignition switch circuits are in the key OFF or removed ignition key positions, power will be disabled after individual time-out periods of 30 minutes for the demand lamps, and 10 minutes for the courtesy lamps. However, the time-out period for the courtesy lamps changes to 30 minutes when the GEM detects that the luggage compartment lid is ajar by means of the luggage compartment lid ajar circuit, or if the dome lamp is switched on by means of the dome lamp circuit. When the GEM detects that the ignition switch is in the RUN, ACC, or START positions, the battery saver feature is disabled.

The battery saver timer for the demand lamps is reset when the GEM detects that the ignition switch is in the OFF or key out positions or when the GEM detects any one of the following conditions:

- the driver or passenger door becomes ajar, as detected by the door ajar circuit
- the luggage compartment lid becomes ajar, as detected by the luggage compartment lid ajar circuit
- the dome lamp switch is activated, as detected by the dome lamp switch circuit

The battery saver timer for the courtesy lamps is reset when the GEM detects that the ignition switch is in the OFF or key out positions or when the GEM detects the driver or passenger door becomes ajar

as detected by the door ajar circuit. For vehicles equipped with the remote keyless entry feature, any signal the GEM detects when a valid remote transmitter button is depressed will reset both the demand and courtesy lamp battery saver timers. This battery saver relay then restores power to both the demand and courtesy lamp circuits.

Base Courtesy and Extended Lighting

The base courtesy lighting feature provides interior lighting for the convenience of the vehicle's occupants. The courtesy lamps consist of the map/dome lamps for the coupe and the map lamps for the convertible. All lamps designated as courtesy lamps will be illuminated whenever the GEM detects that the driver or passenger doors become ajar, by means of the driver or passenger door ajar circuits. The courtesy lamps will also be illuminated when the GEM detects that the dome lamp switch has been activated, by means of the dome lamp switch circuit.

The extended courtesy lighting feature provides temporary extended illumination of the courtesy lamps after the customer has entered the vehicle. The courtesy lamps will remain illuminated for 25 seconds after the GEM detects that the driver and passenger doors are closed, as detected by the door ajar circuits. The extended courtesy lighting feature will be terminated after the 25 second time-out period, or if the GEM detects that the ignition switch has been moved from the OFF position to either the RUN, ACC, or START positions.

Demand Lighting

The GEM does not provide any special features to the demand lighting group with the exception of providing a power source when the battery saver feature is active. The demand lighting group consists of the luggage compartment lamp, the driver and passenger vanity mirror lamps, and the map lamps.

Illuminated Entry with Remote Keyless Entry

The illuminated entry with remote keyless entry feature, provides power to the courtesy lamps when the remote transmitter is used. When the GEM detects that the ignition switch is in the OFF or key out positions, and it detects that a valid remote transmitter unlock button has been depressed, power to the courtesy lamps will be enabled. The courtesy lamp circuit will remain powered until one of the following occurs:

- The GEM detects that the ignition switch has been moved from the OFF, to the RUN, START, or ACC position.
- The GEM detects any valid remote transmitter lock button is depressed.
- The courtesy lamp circuit has been powered for 25 seconds.

If the GEM detects any valid remote transmitter unlock button has been depressed, and the ignition switch is in the OFF or key out position during the 25 second time-out, the courtesy lamp circuits will remain powered for an additional 25 seconds.

Inspection and Verification

1. The interior lighting system is a generic electronic module (GEM) controlled system.
2. Verify the customer concern by operating the interior lighting system.
3. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Switch(es)	● CJB Fuses: ■ 7 (20A) ■ 32 (15A) ■ 39 (5A) ● Wiring harness ● Connections ● Lamps ● Circuitry

4. If the concern remains after the inspection, connect the scan tool to the data link connector (DLC) located beneath the instrument panel and select the vehicle to be tested from the scan tool menu. If the scan tool does not communicate with the vehicle:
   - check that the program card is correctly installed.
   - check the connections to the vehicle.
   - check the ignition switch position.
5. If the scan tool still does not communicate with the vehicle, refer to the scan tool manual.
6. Carry out the DATA LINK DIAGNOSTIC TEST. If the scan tool responds with:
   - CKT914, CKT915 or CKT70 = ALL ECUS NO RESP/NOT EQUIP, refer to Section 418-00 .
   - NO RESP/NOT EQUIP for GEM, go to Pinpoint Test A.
   - SYSTEM PASSED, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs and carry out self-test diagnostics for the GEM.
7. If the DTCs retrieved are related to the concern, go to GEM Diagnostic Trouble Code (DTC) Index to continue diagnostics.
8. If no DTCs related to the concern are retrieved, proceed to Symptom Chart to continue diagnostics.

GEM Diagnostic Trouble Code (DTC) Index

GEM Diagnostic Trouble Code (DTC) Index

DTC	Description	Source	Action
B1322	Driver Door Ajar Circuit Short to Ground	GEM	REFER to Section 417-02 .
B1330	Passenger Door Ajar Circuit Short to Ground	GEM	REFER to Section 417-02 .
B1334	Decklid Ajar Rear Door Circuit Short to Ground	GEM	REFER to Section 417-02 .
B1342	ECU Is Defective	GEM	CLEAR the DTC. Retrieve the DTCs. If DTC B1342 is retrieved, INSTALL a new GEM. For additional information, REFER to Section 419-10 .
B1397	Power Door unlock Circuit Short to Battery	GEM	REFER to Section 501-14B .
B1405	Driver Power Window Down Circuit Short to Battery	GEM	REFER to Section 501-11 .

B1408	Driver Power Window Up Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1410	Driver Power Window Motor Circuit Failure	GEM	REFER to Section 501-11 .
B1426	Lamp Safety Belt Circuit Short to Battery	GEM	REFER to Section 413-01 .
B1428	Lamp Safety Belt Circuit Failure	GEM	REFER to Section 413-01 .
B1431	Wiper Brake/Run Relay Circuit Failure	GEM	REFER to Section 501-16 .
B1432	Wiper Brake/Run Relay Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1434	Wiper Hi/Low Speed Relay Coil Circuit Failure	GEM	REFER to Section 501-16 .
B1436	Wiper Hi/Low Speed Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1438	Wiper Mode Select Switch Circuit Failure	GEM	REFER to Section 501-16 .
B1441	Wiper Mode Select Switch Circuit Short to Ground	GEM	REFER to Section 501-16 .
B1446	Wiper Park Sense Circuit Failure	GEM	REFER to Section 501-16 .
B1448	Wiper Park Sense Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1450	Wiper Wash/Delay Switch Circuit Failure	GEM	REFER to Section 501-16 .
B1453	Wiper Wash/Delay Switch Circuit Short to Ground	GEM	REFER to Section 501-16 .
B1458	Wiper Washer Pump Motor Relay Circuit Failure	GEM	REFER to Section 501-16 .
B1460	Wiper Washer Pump Motor Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1462	Safety Belt Switch Circuit Failure	GEM	REFER to Section 413-09 .
B1466	Wiper Hi/Low Speed Not Switching	GEM	REFER to Section 501-16 .
B1473	Wiper Low Speed Circuit Motor Failure	GEM	REFER to Section 501-16 .
B1476	Wiper High Speed Circuit Motor Failure	GEM	REFER to Section 501-16 .
B1551	Decklid Release Circuit Failure	GEM	REFER to Section 501-14B .
B1553	Decklid Release Circuit Short to Battery	GEM	REFER to Section 501-14B .
B1555	Ignition Run/Start Circuit Failure	GEM	REFER to Section 211-05 .
B1687	Lamp Dome Input Circuit Short to Battery	GEM	REFER to Section 417-02 .
B2486	LF Side Repeater Lamp	GEM	REFER to Section 417-01 .

	Output Circuit Failure		
B2488	RF Side Repeater Lamp Output Circuit Failure	GEM	REFER to Section 417-01 .
C1189	Brake Fluid Level Sensor Input Short Circuit to Ground	GEM	REFER to Section 413-01 .
C1223	Lamp Brake Warning Output Circuit Failure	GEM	REFER to Section 413-01 .
C1225	Lamp Brake Warning Output Circuit Short to Battery	GEM	REFER to Section 413-01 .

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
● No communication with the generic electronic module	● CJB Fuse 39 (5A) ● GEM. ● Circuitry.	● GO to Pinpoint Test A .
● The courtesy lamps are inoperative	● CJB Fuse 7 (20A). ● Door ajar switch (es). ● Courtesy lamp assemblies. ● Circuitry. ● GEM. ● Ignition Switch. ● Headlamp Switch.	● GO to Pinpoint Test B .
● The demand lighting is inoperative	● CJB Fuse 7 (20A). ● Circuitry. ● GEM. ● Door ajar switch (es). ● Demand lamp assemblies. ● Ignition Switch. ● Headlamp Switch.	● GO to Pinpoint Test C .
● The illuminated entry is inoperative when using the remote transmitter	● Remote transmitter. ● GEM.	● GO to Pinpoint Test D .
● The battery saver does not deactivate after timeout	● Circuitry. ● GEM.	● GO to Pinpoint Test E .

Pinpoint Tests

CAUTION: Before removing and installing the GEM or its connectors, disconnect the

battery. Failure to follow this caution will result in the GEM storing many erroneous DTCs and may result in the GEM exhibiting erratic operation after installation.

CAUTION: Be careful when probing the central junction box (CJB), battery junction box (BJB), or any connectors. Damage will result to the connector receptacle if the probe being used is too large.

CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

NOTE: If continuous DTCs are recorded and the symptom is not present when carrying out the pinpoint tests, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

NOTE: Complete the entire pinpoint test related to the symptom before installing a new GEM.

PINPOINT TEST A: NO COMMUNICATION WITH THE GENERIC ELECTRONIC MODULE

<table>
<tr><th>Test Step</th><th>Result / Action to Take</th></tr>
<tr><td colspan="2">CAUTION: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.</td></tr>
<tr><td>A1 GENERIC ELECTRONIC MODULE (GEM) POWER SUPPLY</td><td rowspan="2">Yes
GO to A2 .

No
REPAIR the circuit(s) in question. TEST the system for normal operation.</td></tr>
<tr><td>

Key in OFF position.
Disconnect: Generic Electronic Module (GEM) C201a.
Disconnect: GEM C201b.
Key in ON position.
Using the following table, measure the voltage between the GEM, harness side and ground.

<table>
<tr><th>Connector</th><th>Pin</th><th>Circuit</th></tr>
<tr><td>C201a</td><td>2</td><td>400 (LB/BK)</td></tr>
<tr><td>C201a</td><td>3</td><td>1006 (DG/WH)</td></tr>
<tr><td>C201b</td><td>1</td><td>1001 (WH/YE)</td></tr>
<tr><td>C201b</td><td>4</td><td>193 (YE/LG)</td></tr>
</table>

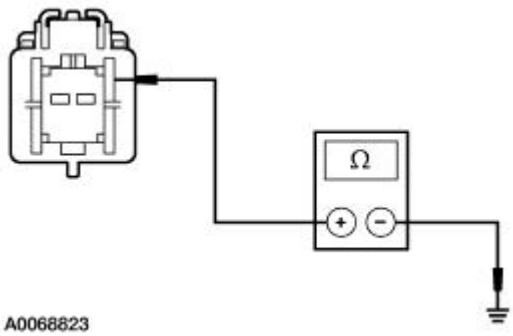
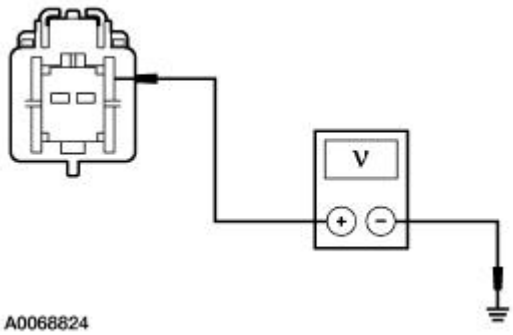
Are the voltages greater than 10 volts?

</td></tr>
<tr><td>A2 CHECK THE GEM GROUND CIRCUIT 397 (BK/WH) FOR OPEN</td><td rowspan="2">Yes
GO to A3 .

No
REPAIR the circuit(s) in question. TEST the system for normal operation.</td></tr>
<tr><td>

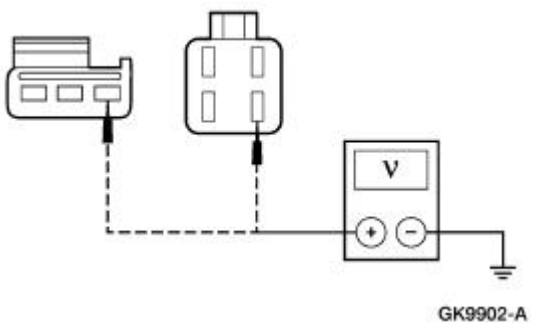
Key in OFF position.
Measure the reistance between the GEM C201b pin 2, circuit 397 (BK/WH), harness side and ground.

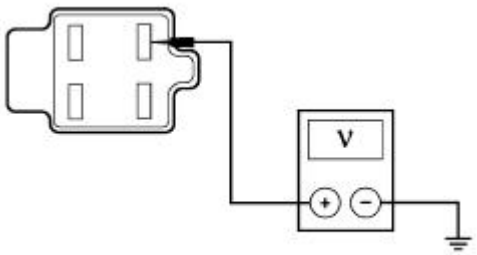
</td></tr>
</table>

 A0068823 ● **Is the resistance less than 5 ohms?**	
A3 CHECK CIRCUIT 397 (BK/WH) FOR SHORT TO POWER	
● Measure the voltage between GEM C201b pin 2, circuit 397 (BK/WH), harness side and ground.  A0068824 ● **Is any voltage present?**	**Yes** REPAIR the circuit. TEST the system for normal operation. **No** REFER to Section 418-00 .

PINPOINT TEST B: THE COURTESY LAMPS ARE INOPERATIVE

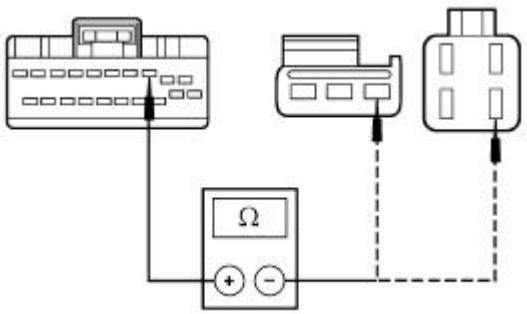
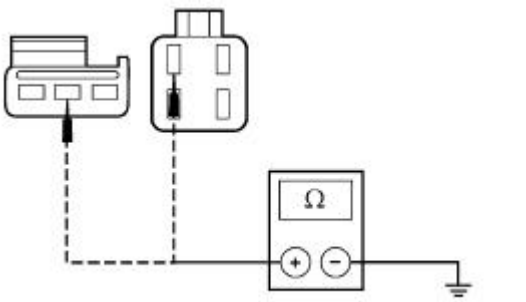
Test Step	Result / Action to Take
B1 CHECK IGNITION STATES	
● Monitor the GEM PIDS IGN_KEY, IGN_A, IGN_S, and IGN_R while cycling the ignition switch through the OFF, ACC, RUN, START and key out positions. ● **Do the PID values agree with the ignition switch positions?**	**Yes** GO to B2 . **No** For key-in-ignition concerns, REFER to Section 413-09 .
B2 CHECK THE DOOR AJAR INPUT TO THE GEM	
● Monitor the GEM PID D_DOOR, and P_DOOR, while opening and closing the driver and passenger doors. ● **Do the GEM PIDS D_DOOR and P_DOOR agree with the driver and passenger door positions?**	**Yes** GO to B3 . **No** REFER to Section 413-09 .
B3 CHECK THE DOME LAMP SWITCH STATUS INPUT TO THE GEM — MONITOR THE GEM PID DOMESW	
● Monitor the GEM PID DOMESW, while activating, and deactivating the dome lamp switch. ● **Does the GEM PID DOMESW agree with the dome lamp switch position?**	**Yes** GO to B4 . **No** GO to B13 .
B4 CHECK THE LUGGAGE COMPARTMENT LID AJAR INPUT TO THE GEM — MONITOR THE GEM PID DECKLID	

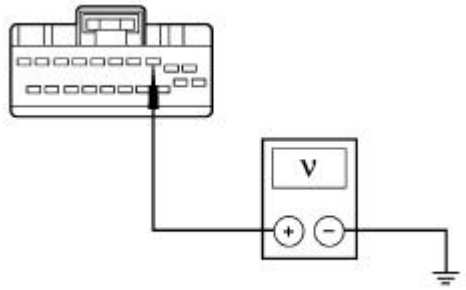
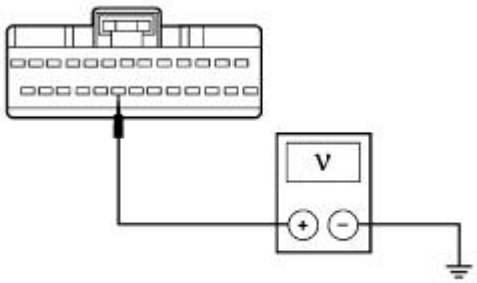
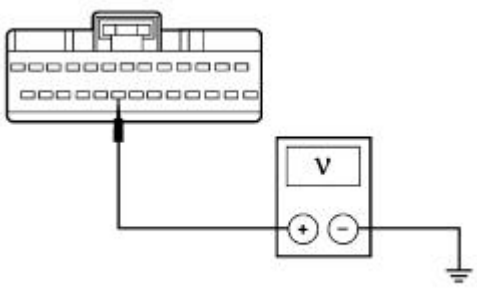
• Monitor the GEM PID DECKLID, while opening and closing the luggage compartment lid. • **Does the GEM PID DECKLID agree with the dome switch position?**	**Yes** GO to B5 . **No** GO to B16 .
B5 CHECK THE COURTESY LAMP CIRCUITS	
• Close the luggage compartment lid and all doors are closed. • Turn the dome and map lamp switches to the off position. • **Are the courtesy lamps illuminated?**	**Yes** GO to B12 . **No** GO to B6 .
B6 CHECK THE GEM CONTROL OF THE COURTESY LAMPS	
• Trigger the GEM active command COURTESYL ON and then OFF. • **Do the courtesy lamps illuminate when the GEM active command COURTESYL ON is triggered, and go out when the GEM active command COURTESYL OFF is triggered?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** GO to B7 .
B7 CHECK THE GEM FOR AN INTERNAL FAULT	
• Trigger the GEM active command COURTESYL ON, then OFF. • **Can an audible click be heard coming from the GEM, while triggering the active command COURTESYL ON?**	**Yes** GO to B8 . **No** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs.
B8 CHECK CIRCUIT 1034 (BK/WH) FOR VOLTAGE	
• Disconnect the dome lamp C929 (coupe) or map lamp C978 (convertible) • Trigger the GEM active command COURTESYL ON. • Measure the voltage between dome/map lamp C929 (coupe) Pin 3 or map lamp C978 (convertible) Pin 4, Circuit 1034 (BK/WH), harness side and ground.  GK9902-A • **Is the voltage greater than 10 volts?**	**Yes** GO to B11 . **No** GO to B9 .
B9 CHECK CIRCUIT 1006 (DG/WH) FOR OPEN	
NOTE: Verify battery voltage at CJB Fuse 7 (20A) before carrying out this test. • Disconnect: GEM C201a. • Measure the voltage between GEM C201a Pin 1, Circuit 1006 (DG/WH), harness side and ground.	**Yes** GO to B10 . **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.

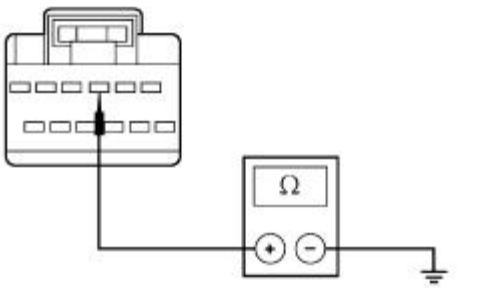
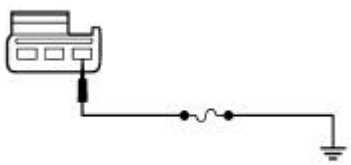


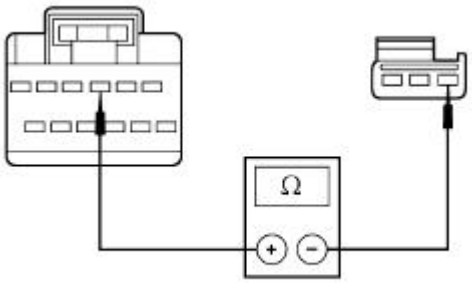
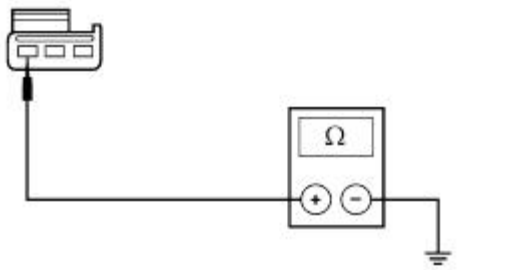
GK9903-A

- **Is the voltage greater than 10 volts?**

B10 CHECK CIRCUIT 1034 (BK/WH) FOR OPEN • Disconnect: GEM C201c. • Measure the resistance between GEM C201c Pin 3, Circuit 1034 (BK/WH), harness side and dome/map lamp C929 (coupe) Pin 3 or map lamp C978 (convertible) Pin 4, Circuit 1034 (BK/WH), harness side.  GK9904-A • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.
B11 CHECK CIRCUIT 1205 (BK) FOR OPEN • Measure the resistance between dome/map lamp C929 (coupe) Pin 2 or map lamp C978 (convertible) Pin 1, Circuit 1205 (BK), harness side and ground.  GK9905-A • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new dome/map lamp assembly. For additional information, REFER to Lamp Assembly—Map/Dome . **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.
B12 CHECK CIRCUIT 1034 (BK/WH) FOR SHORT TO BATTERY • Measure the voltage between GEM C201c Pin 3, Circuit 1034 (BK/WH), harness side and ground.	**Yes** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. **No** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs.

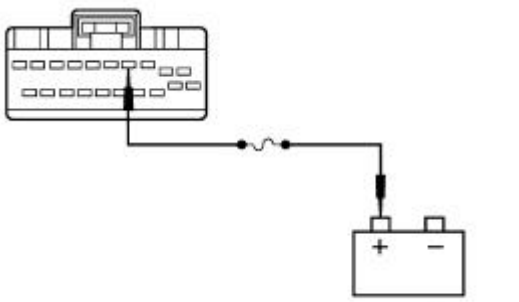
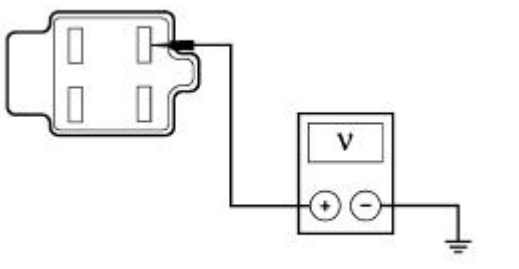
 GK9906-A ● **Is the voltage greater than 10 volts?**	
B13 CHECK THE COURTESY LAMP OPERATION — MONITOR THE GEM PID DOMESW	
● Monitor the GEM PID DOMESW, while moving the interior lamp switch from the OFF to the ON position. ● **Does the GEM PID DOMESW value always indicate ON?**	**Yes** GO to B15 . **No** GO to B14 .
B14 CHECK CIRCUIT 706 (GY) FOR OPEN	
● Disconnect: GEM C201e. ● Measure the voltage between GEM C201e Pin 21, Circuit 706 (GY), harness side and ground.  GK9907-A ● **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.
B15 CHECK CIRCUIT 706 (GY) FOR SHORT TO BATTERY	
● Measure the voltage between GEM C201e Pin 21, Circuit 706 (GY), harness side and ground.  GK9907-A ● **Is the voltage greater than 10 volts?**	**Yes** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs. **No** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs.
B16 CHECK CIRCUIT 486 (BN/WH) FOR OPEN OR SHORT TO GROUND — MONITOR THE GEM PID DECKLID	
● Monitor the GEM PID DECKLID, while opening and closing the luggage compartment lid. ● **Does the GEM PID DECKLID agree with the luggage compartment lid position?**	**Yes** GO to B17 . **No** GO to B19 .

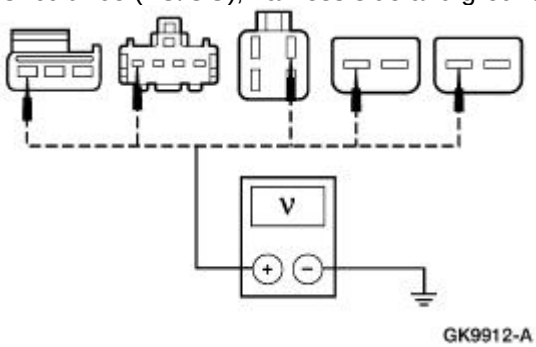
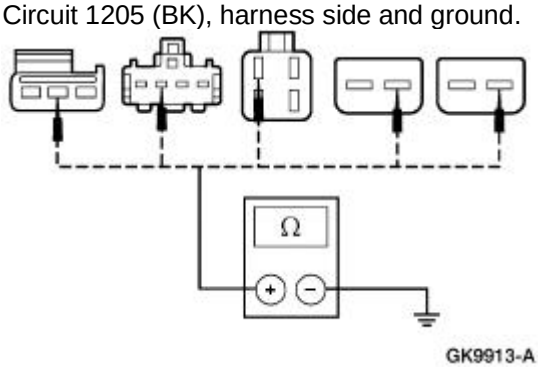
B17 CHECK LUGGAGE COMPARTMENT SOLENOID FOR SHORT TO GROUND	
• Key in OFF position. • Disconnect: Luggage Compartment Solenoid C430. • Monitor the GEM PID DECKLID. • **Does the GEM PID DECKLID indicate closed?**	**Yes** INSTALL a new luggage compartment solenoid. For additional information, REFER to Section 501-14A . REPEAT the self-test. CLEAR the DTC. **No** GO to B18 .
B18 CHECK CIRCUIT 486 (BN/WH) FOR SHORT TO GROUND	
• Disconnect: GEM C201d. • Measure the resistance between GEM C201d Pin 3, Circuit 486 (BN/WH), harness side and ground.  GK9908-A • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.
B19 CHECK CIRCUIT 486 (BN/WH) FOR AN OPEN — MONITOR GEM PID DECKLID	
• Disconnect: Luggage Compartment Solenoid C430. • Monitor the GEM PID DECKLID. • Connect a 10A fused jumper between luggage compartment solenoid C430 Pin 3, Circuit 486 (BN/WH), harness side and ground.  GK9909-A • **Does the GEM PID DECKLID indicate AJAR with the jumper installed?**	**Yes** GO to B21 . **No** GO to B20 .
B20 CHECK CIRCUIT 486 (BN/WH) FOR OPEN	
• Disconnect: GEM C201d. • Measure the resistance between GEM C201d Pin 3, Circuit 486 (BN/WH), harness side and luggage compartment solenoid C430 Pin 3, Circuit 486 (BN/WH) harness side.	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit. REPEAT the self-test.

 GK9910-A ● **Is the resistance less than 5 ohms?**	CLEAR the DTCs.
B21 CHECK GROUND CIRCUIT 1205 (BK) FOR OPEN	
● Measure the resistance between luggage compartment lid switch C430 Pin 1, Circuit 1205 (BK), harness side and ground.  GN2312-A ● **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new luggage compartment solenoid. For additional information, REFER to Section 501-14A . REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.

PINPOINT TEST C: THE DEMAND LIGHTING IS INOPERATIVE

Test Step	Result / Action to Take
C1 CHECK GEM SUPPLIED POWER TO THE DEMAND LAMPS	
● Turn on both map lamps by depressing the map lamp switches. ● Turn on both vanity mirror lamps. ● Open the luggage compartment lid. ● **Do any of the lamps illuminate?**	**Yes** GO to C8 . **No** GO to C2 .
C2 CHECK IGNITION STATES	
● Monitor the GEM PIDS IGN_KEY, IGN_A, IGN_S, and IGN_R while cycling the ignition switch through the OFF, ACC, RUN, START and key out positions. ● **Do the PID values agree with the ignition switch positions?**	**Yes** GO to C3 . **No** For key-in-ignition concerns, REFER to Section 413-09 .
C3 CHECK DRIVER AND PASSENGER DOOR AJAR INPUTS TO THE GEM	
● Monitor the GEM PIDs D_DOOR and P_DOOR, while opening and closing the driver and passenger doors. ● **Did the GEM PIDs D_DOOR and P_DOOR agree with the driver and passenger door positions?**	**Yes** GO to C4 . **No** REFER to Section 413-09 .

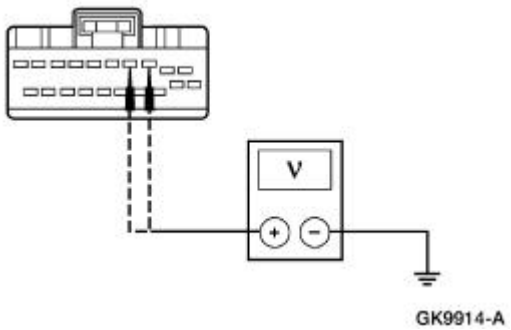
C4 CHECK INTERIOR LAMP SWITCH INPUT TO THE GEM — MONITOR GEM PID DOMESW	
• Monitor the GEM PID DOMESW, while moving the interior lamp switch from the OFF to the ON position. • **Does the GEM PID DOMESW values agree with the interior lamp switch positions?**	**Yes** GO to C5 . **No** GO to Pinpoint Test B .
C5 CHECK THE LUGGAGE COMPARTMENT LID AJAR INPUT TO THE GEM — MONITOR THE GEM PID DECKLID	
• Monitor the GEM PID DECKLID, while opening, and closing, the luggage compartment lid. • **Does the GEM PID DECKLID agree with the luggage compartment lid position?**	**Yes** GO to C6 . **No** GO to Pinpoint Test B .
C6 CHECK CIRCUIT 705 (LG/OG) FOR OPEN	
• Turn on both map lamps using the switches in the rear view mirror. • Turn on both vanity mirror lamps. • Open the luggage compartment lid. • Disconnect: GEM C201c. • Connect a fused jumper (20A) between GEM C201c Pin 4, Circuit 705 (LG/OG), harness side and battery positive terminal.  GK9911-A • **Do the demand lamps illuminate?**	**Yes** GO to C7 . **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.
C7 CHECK CIRCUIT 1006 (DG/WH) FOR OPEN	
NOTE: Verify battery voltage at CJB Fuse 7 (20A) before carrying out this test. • Disconnect: GEM C201a. • Measure the voltage between GEM C201a Pin 1, Circuit 1006 (DG/WH), harness side and ground.  GK9903-A • **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit. REPEAT the self-test. CLEAR the DTCs.
C8 CHECK CIRCUIT 705 (LG/OG) FOR VOLTAGE AT INOPERATIVE DEMAND LAMP	
• Key in OFF position. • Disconnect inoperative demand lamp, dome/map C929	**Yes** GO to C9 .

(coupe), map C907 (convertible), right hand vanity C906, left hand vanity C978, or luggage compartment C4111. ● Measure the voltage between inoperative demand lamp, Circuit 705 (LG/OG), harness side and ground.  GK9912-A ● **Is the voltage greater than 10 volts?**	**No** REPAIR the circuit in question. REPEAT the self-test. CLEAR the DTCs.
C9 CHECK CIRCUIT 1205 (BK) FOR OPEN AT INOPERATIVE DEMAND LAMP	
● Measure the resistance between inoperative demand lamp Circuit 1205 (BK), harness side and ground.  GK9913-A ● **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new demand lamp assembly. REPEAT the self-test. CLEAR the DTCs. **No** REPAIR the circuit in question. REPEAT the self-test. CLEAR the DTCs.

PINPOINT TEST D: THE ILLUMINATED ENTRY IS INOPERATIVE WHEN USING THE REMOTE TRANSMITTER

Test Step	Result / Action to Take
D1 CHECK THE REMOTE TRANSMITTER INPUT TO THE GEM	
● Remove the ignition key from the ignition. ● Depress the lock and then the unlock buttons on the remote transmitter. ● **Do the doors lock when the lock button is depressed and unlock when the unlock button is depressed?**	**Yes** GO to D2 . **No** REFER to Section 501-14B .
D2 CHECK OPERATION OF ILLUMINATED ENTRY WITHOUT REMOTE TRANSMITTER	
● Open the driver door. ● **Do the courtesy lamps illuminate?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** GO to Pinpoint Test B .

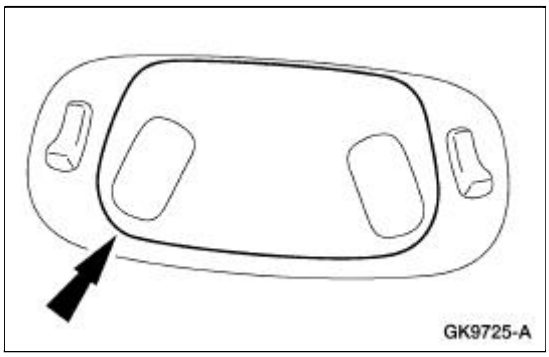
PINPOINT TEST E: THE BATTERY SAVER DOES NOT DEACTIVATE AFTER TIMEOUT

Test Step	Result / Action to Take
E1 CHECK THE GEM CONTROL OF THE BATTERY SAVER FUNCTION — TRIGGER THE GEM ACTIVE COMMAND BATT SAVR ON	
• Trigger the GEM active command BATT SAVR ON and then OFF. • **Do the courtesy lamps illuminate and turn off when the GEM active command BATT SAVR is triggered ON and OFF?**	**Yes** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs. **No** GO to E2 .
E2 CHECK CIRCUITS 1034 (BK/WH), AND 705 (LG/OG), FOR SHORT TO BATTERY	
• Disconnect: GEM C201c. • Measure the voltage between GEM C292 Pin 3, Circuit 1034 (BK/WH), harness side and ground; and between GEM C292 Pin 4, Circuit 705 (LG/OG), harness side and ground.  GK9914-A • **Is the voltage greater than 10 volts?**	**Yes** REPAIR the circuit in question. REPEAT the self-test. CLEAR the DTCs. **No** INSTALL a new GEM. For additional information, REFER to Section 419-10 . REPEAT the self-test. CLEAR the DTCs.

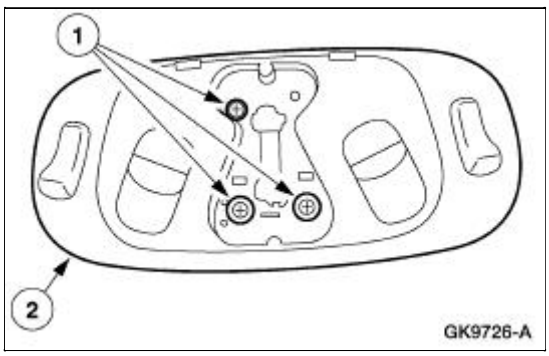
Lamp Assembly —Map/Dome

Removal

1. Disconnect the battery ground cable.
2. Remove the lamp lens from the lamp assembly.



3. Remove the lamp assembly.
   1. Remove the screws.
   2. Remove the lamp assembly.
      - Disconnect the electrical connectors.



Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

   To install, reverse the removal procedure.

Torque Specifications

Description	Nm	lb-in
Battery ground cable screw	8	71
Daytime running lamps control module bolts	9	80

Daytime Running Lamps (DRL)

The daytime running lamp (DRL) system consists of a daytime running lamp module and bracket assembly (15A270). The module is located on the front bumper reinforcement.

Daytime Running Lamps (DRL)

Refer to Wiring Diagrams Cell 97 , Daytime Running Lamps for schematic and connector information.

Special Tool(s)

ST1137-A	73III Automotive Meter or equivalent 105-R0057

Principles of Operation

Daytime Running Lamps (DRL)

The daytime running lamps (DRL) system operates the low beam headlamps at a reduced intensity. The DRL module (15A270) supplies pulse width modulated (PWM) voltage, approximately 75%-92% of battery voltage, to the low beam headlamps when the following conditions are met:

- The parking brake control is released.
- The high beam headlamps are disabled.
- The ignition switch (11572) is in the RUN position.

The DRL module remains enabled when the low beam headlamps are turned on.

Inspection and Verification

1. Verify the customer concern by operating the system.
2. Visually inspect for obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
● Damaged DRL module ● Damaged parking brake signal switch and bracket (15A851)	● Blown battery junction box (BJB) Maxi-Fuse FOG+DRL (20A) ● Damaged wiring harness ● Loose or corroded connection ● Damaged DRL module ● Damaged parking brake signal switch and bracket

3. Verify the headlamps are operating correctly. Correct any concerns before proceeding to the

next step. For additional information, refer to Section 417-01 .

4. Verify the parking brake control is fully released.

5. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

6. If the concern is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

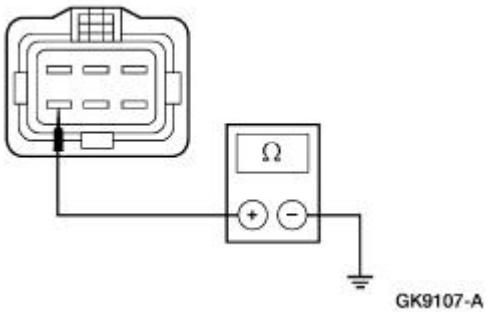
Symptom Chart

Condition	Possible Sources	Action
• The daytime running lamps are inoperative	• BJB Maxi-Fuse FOG+DRL (20A). • Circuitry. • Parking brake signal switch and bracket. • DRL module.	• GO to Pinpoint Test A .
• The daytime running lamps are on with the parking brake set	• Circuitry. • Parking brake signal switch and bracket. • DRL module.	• GO to Pinpoint Test B .
• The daytime running lamps are on with the ignition switch off	• Circuitry. • Ignition switch. • DRL module.	• GO to Pinpoint Test C .
• The low beam headlamps are on at full intensity in DRL mode	• Circuitry. • Headlamp switch. • DRL module.	• GO to Pinpoint Test D .
• The low beam headlamps are on at reduced intensity with the headlamp switch on	• Circuitry. • Headlamp switch.	• REFER to Section 417-01 .

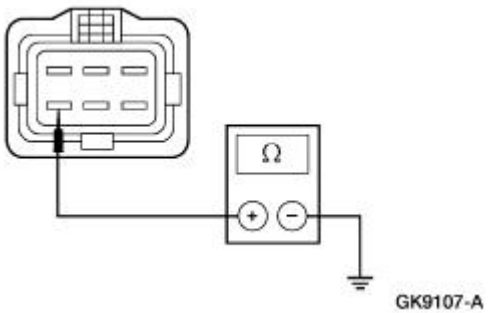
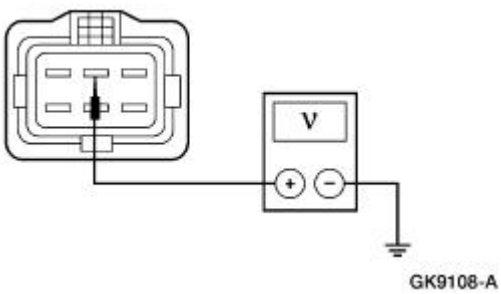
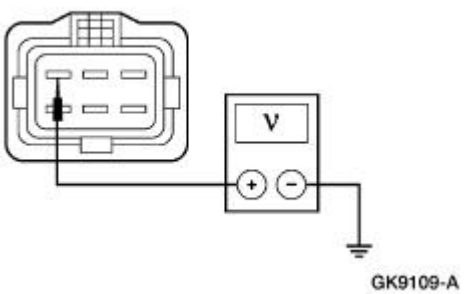
Pinpoint Tests

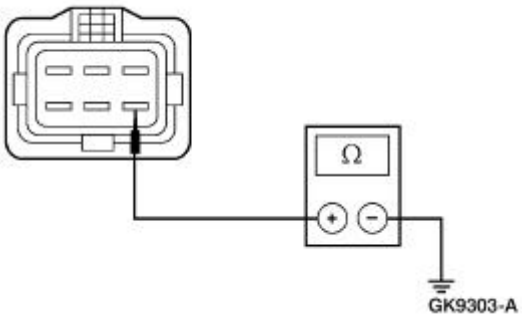
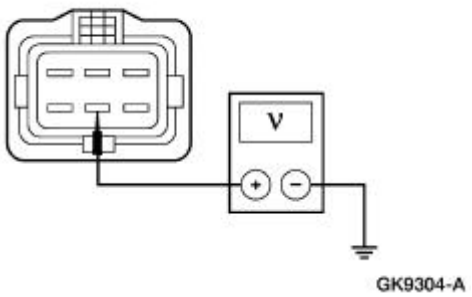
PINPOINT TEST A: THE DAYTIME RUNNING LAMPS ARE INOPERATIVE

Test Step	Result / Action to Take
A1 CHECK THE PARKING BRAKE SWITCH SIGNAL CIRCUIT TO THE DRL MODULE FOR SHORT TO GROUND	
NOTE: Verify the parking brake control is fully released for this step. • Key in OFF position. • Disconnect: DRL Module C1030. • Measure the resistance between DRL module C1030 Pin 6, Circuit 22 (LB/BK), harness side and ground.	**Yes** GO to A3 . **No** GO to A2 .

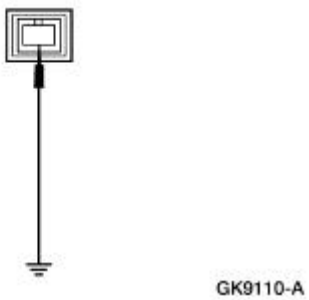


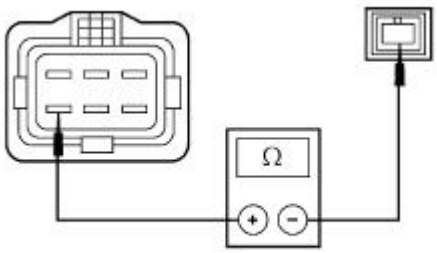
- **Is the resistance greater than 10,000 ohms?**

A2 CHECK THE PARKING BRAKE SWITCH	
• Disconnect: Parking Brake Switch C306. • Measure the resistance between DRL module C1030 Pin 6, Circuit 22 (LB/BK), harness side and ground.  • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new parking brake signal switch and bracket. TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.
A3 CHECK VOLTAGE TO THE DRL MODULE	
• Measure the voltage between DRL module C1030 Pin 2, Circuit 477 (LB/BK), harness side and ground.  • **Is the voltage greater than 10 volts?**	**Yes** GO to A4 . **No** REPAIR the circuit. TEST the system for normal operation.
A4 CHECK IGNITION SENSE INPUT	
• Key in ON position. • Measure the voltage between DRL module C1030 Pin 3, Circuit 298 (VT/OG), harness side and ground.  	**Yes** GO to A5 . **No** REPAIR the circuit. TEST the system for normal operation.

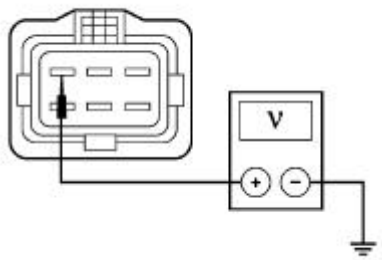
• **Is the voltage greater than 10 volts?**	
A5 CHECK THE DRL MODULE GROUND — CIRCUIT 1205 (BK)	
• Measure the resistance between DRL module C1030 Pin 4, Circuit 1205 (BK), harness side and ground.  • **Is the resistance less than 5 ohms?**	**Yes** GO to A6 . **No** REPAIR the circuit. TEST the system for normal operation.
A6 CHECK THE HIGH BEAM DISABLE INPUT CIRCUIT FOR SHORT TO BATTERY — CIRCUIT 12 (LG/BK)	
• Measure the voltage between DRL module C1030 Pin 5, Circuit 12 (LG/BK), harness side and ground.  • **Is voltage indicated?**	**Yes** REPAIR the circuit. TEST the system for normal operation. **No** INSTALL a new DRL module. REFER to Module—Daytime Running Lamps (DRL) . TEST the system for normal operation.

PINPOINT TEST B: THE DAYTIME RUNNING LAMPS ARE ON WITH THE PARKING BRAKE SET

Test Step	Result / Action to Take
B1 CHECK THE PARKING BRAKE SWITCH	
• Key in OFF position. • Disconnect: Parking Brake Switch C306. • Connect a 10A fused jumper wire between parking brake switch C306, Circuit 22 (LB/BK), harness side and ground.  • Key in ON position.	**Yes** INSTALL a new parking brake signal switch and bracket. TEST the system for normal operation. **No** GO to B2 .

• **Do the DRL turn off?**	
B2 CHECK THE PARKING BRAKE SWITCH SIGNAL CIRCUIT	
• Key in OFF position. • Disconnect: DRL Module C1030. • Measure the resistance between parking brake switch C306, Circuit 22 (LB/BK), harness side and DRL module C1030 Pin 6, Circuit 22 (LB/BK), harness side.  GK9111-A • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new DRL module. REFER to Module—Daytime Running Lamps (DRL) . TEST the system for normal operation. **No** REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST C: THE DAYTIME RUNNING LAMPS ARE ON WITH THE IGNITION SWITCH OFF

Test Step	Result / Action to Take
C1 CHECK THE IGNITION SWITCH INPUT TO THE DRL MODULE FOR VOLTAGE	
• Key in OFF position. • Disconnect: DRL Module C1030. • Measure the voltage between DRL module C1030 Pin 3, Circuit 298 (VT/OG), harness side and ground.  GK9109-A • **Is voltage indicated?**	**Yes** GO to C2 . **No** INSTALL a new DRL module. REFER to Module—Daytime Running Lamps (DRL) . TEST the system for normal operation.
C2 CHECK THE IGNITION SWITCH	
• Check the ignition switch; refer to the Wiring Diagrams Cell 149. • **Is the ignition switch OK?**	**Yes** REPAIR Circuit 298 (VT/OG) for short to battery. TEST the system for normal operation. **No** INSTALL a new ignition switch. REFER to Section 211-05 . TEST the system for normal operation.

PINPOINT TEST D: THE LOW BEAM HEADLAMPS ARE ON AT FULL INTENSITY IN DRL MODE

Test Step	Result / Action to Take
D1 CHECK THE LOW BEAM HEADLAMPS INPUT • Disconnect: DRL Module C1030. • **Are the low beam headlamps still on at full intensity?**	**Yes** REFER to Section 417-01 . **No** INSTALL a new DRL module. REFER to Module—Daytime Running Lamps (DRL) . TEST the system for normal operation.

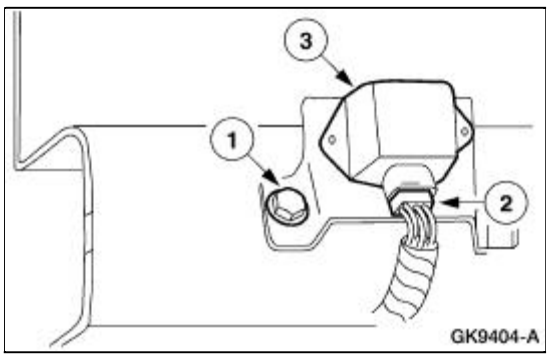
Module —Daytime Running Lamps (DRL)

Removal

1. **CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage can result.**

   Disconnect the battery ground cable.

2. Remove the daytime running lamps (DRL) module and bracket assembly (15A270).
   1. Remove the nut.
   2. Disconnect the electrical connector.
   3. Remove the DRL module and bracket assembly.



Installation

1. **CAUTION: When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 10 miles (16 km) or more to relearn the strategy.**

   To install, reverse the removal procedure.